

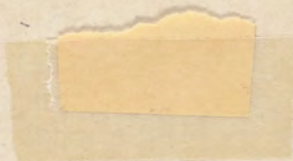


H. Lenox Hodge, M.D.



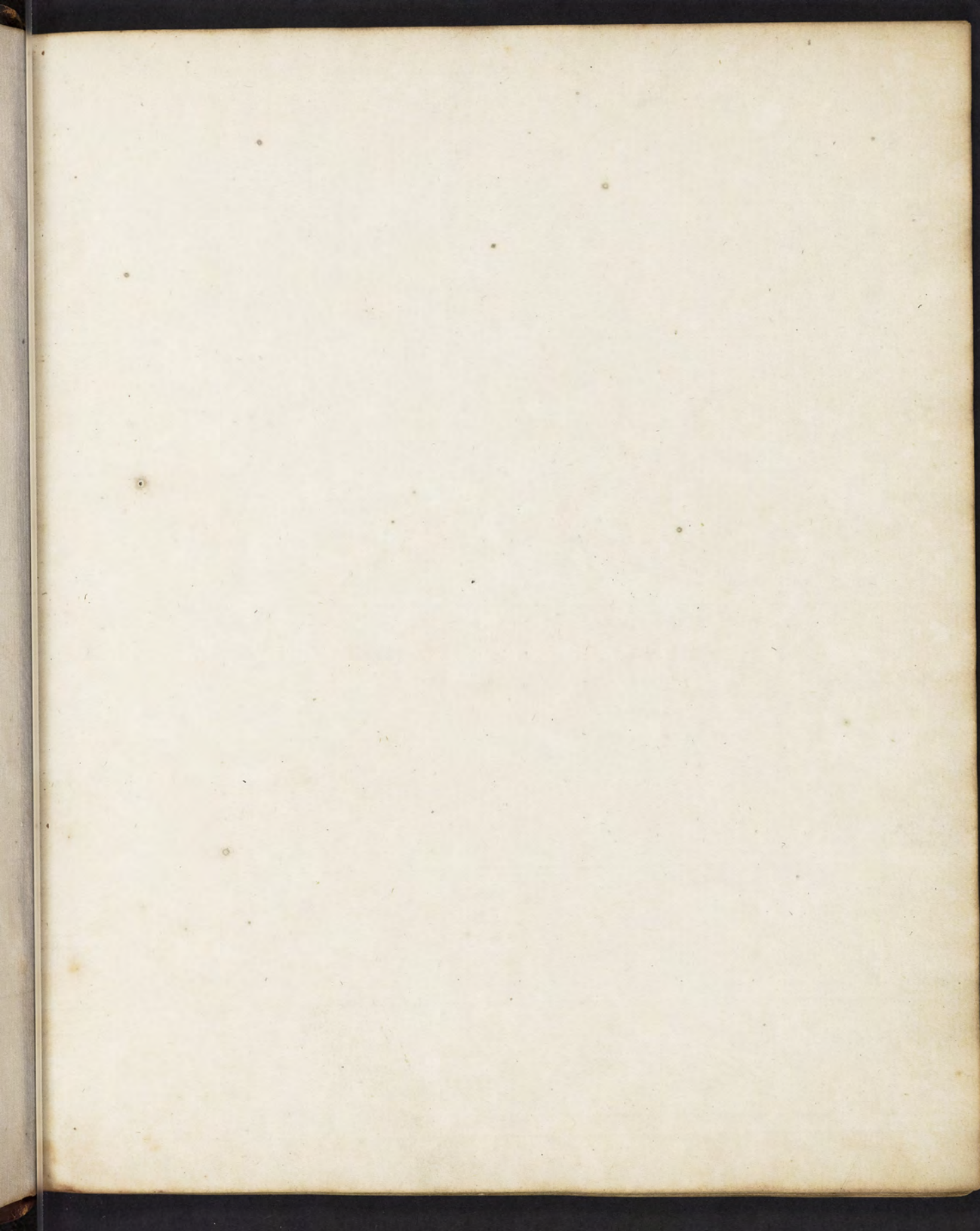
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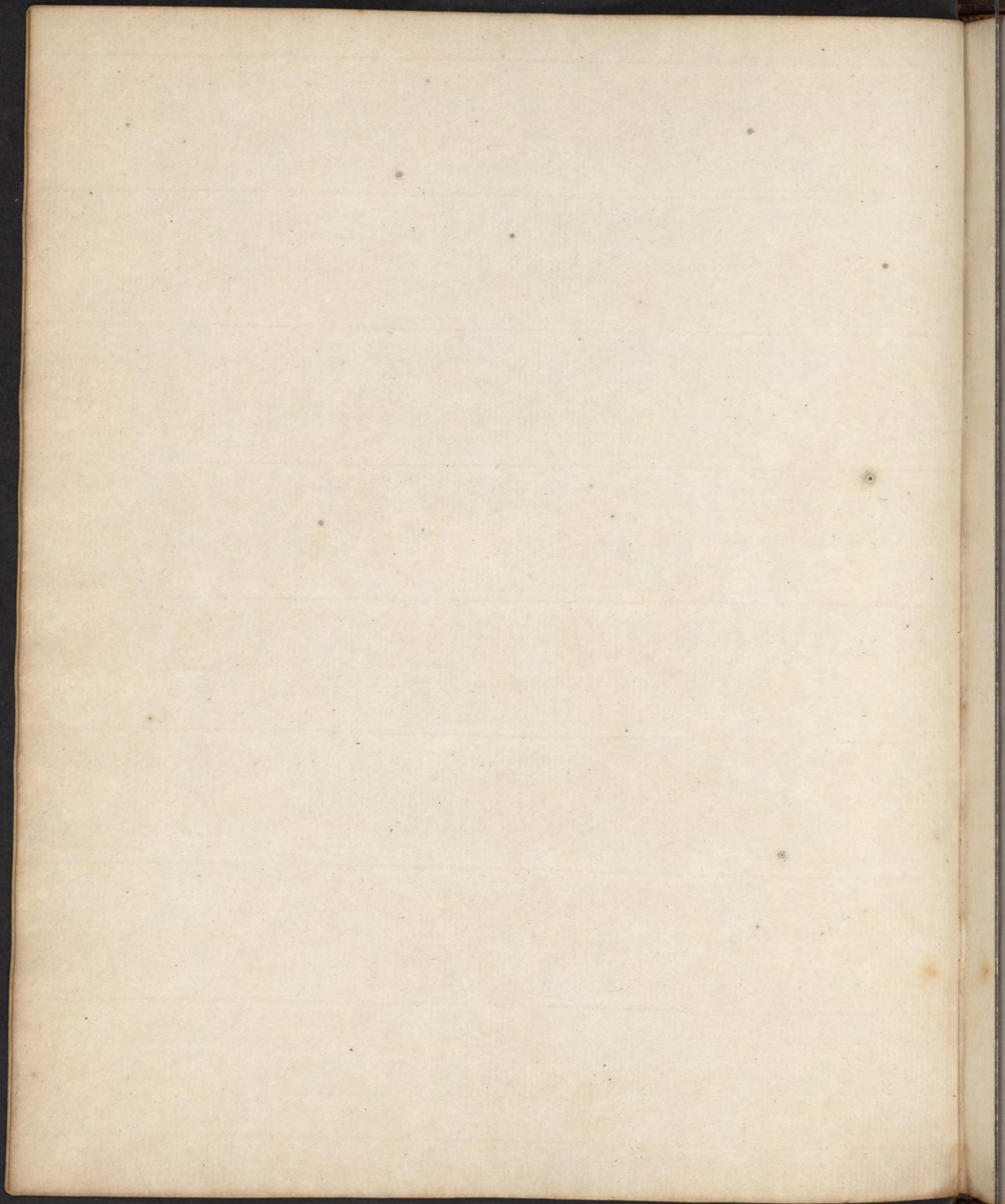
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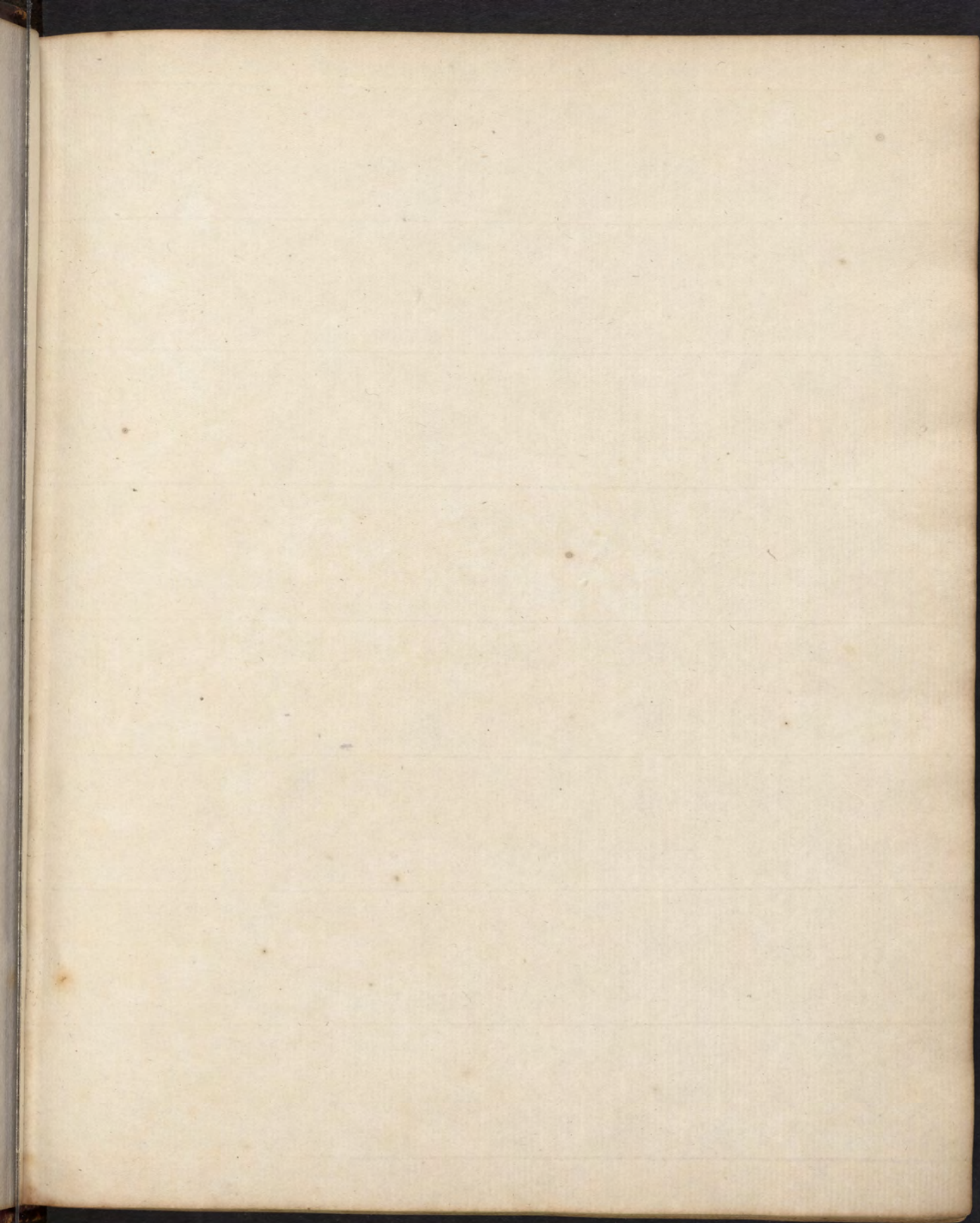


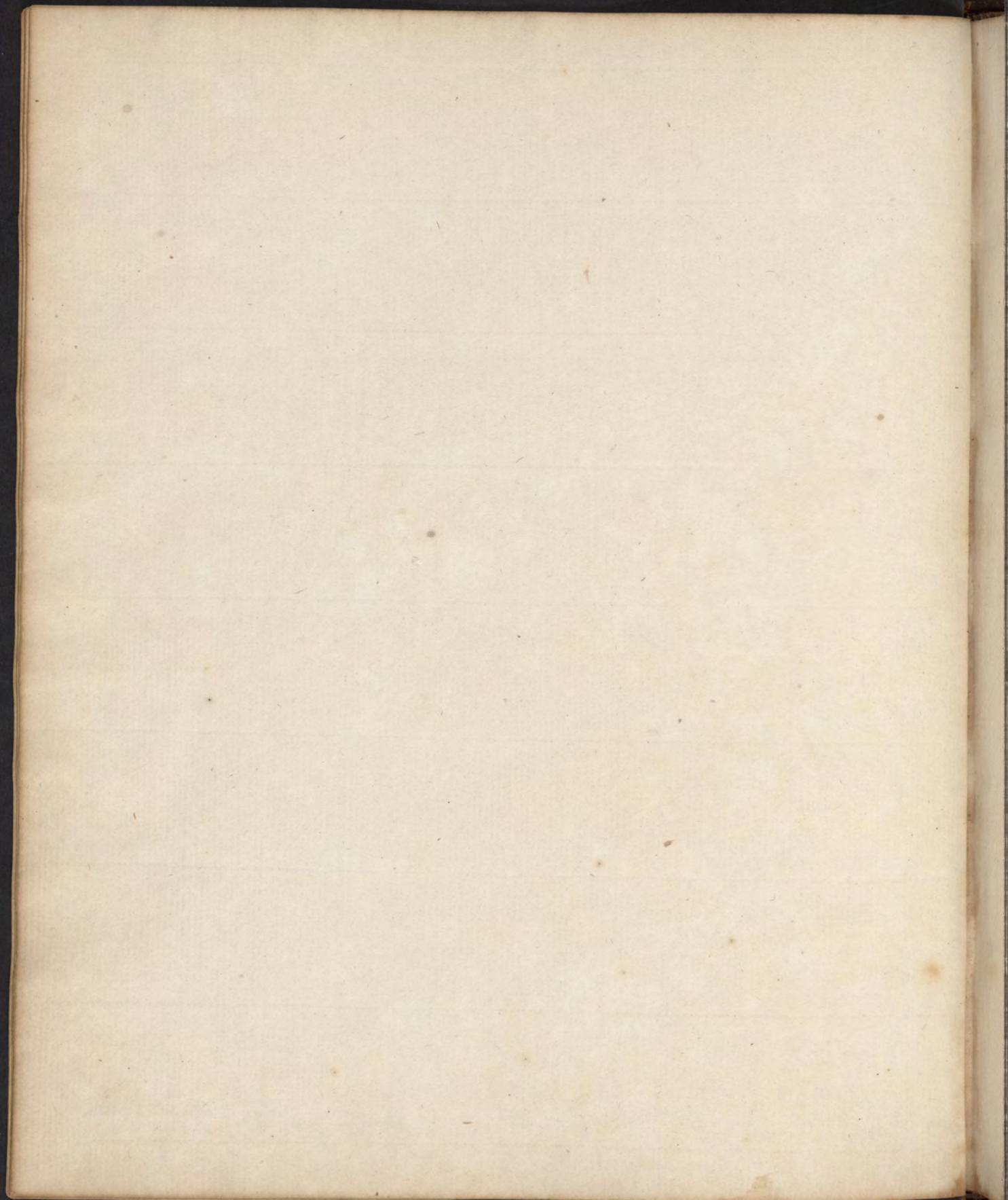
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John C. Brown

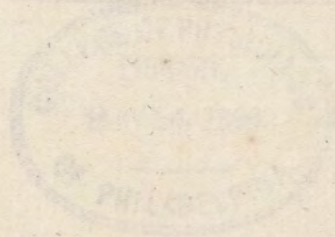








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were present at the meeting
of the Board of Directors
of the Philadelphia
Academy of Natural Sciences
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Notes

from a Course of Lectures on the Materia Medica



No Study is more interesting to the Mind of Man no Knowledge more important than that of Medicine. Of all the Goods of Life Health is the most desirable, it is the Soul of Enjoyment; without it Beauty fades and Youth loses its Vigour and a Man will starve tho' at the best Tables and surrounded with the greatest Delicacies. When deprived of Health a person becomes poor and wretched altho' possessed of the greatest Wealth. Even a slight degree of disease renders Riches tasteless and Crowns themselves a Burden. If diseases are painful they equal all Conditions, they make no difference between the Prince and the Beggar: a fit of the Stone or Colic puts a King ^{to the test} and places him upon a level with the meanest of his Subjects.

Since the Evils caused by Disease are so great, Man must early have been desirous of attaining Health, guarding against Sickness and restoring his injured Frame to a vigorous State. From hence we need not be surprized that Asculapius, who was considered as the first Inventor of the healing Art, had Statues erected to his Memory, was called the Son of Apollo, had Temples consecrated to him and was honored as a God. But we cannot consider any one as the Founder of this Science. It is probable that from a slender and imperceptible Beginning, by the
successive

successive Labours of Ages it was brought to its present State of perfection. It may be of Advantage to trace its Origin at least as far as regards our present Subject. It is not to be doubted but that in the first Ages of the World Man would be anxious to guard against Disease and endeavour to remove those with which he was attacked even at that early period. This laid the first Foundation for the *Materia Medica*; by which is meant that Science which treats of the Remedies made use of for the preservation of Health and the Cure of diseases.

This Knowledge in those days must have been very much confined. It has been brought to its present State of perfection and almost all Medicines discovered by Accident, Instinct or promiscuous Experiment. By Accident we mean the discovery of Medicines undesignedly made, like what we are told by the celebrated Mr. Geoffroy of the Peruvian Bark, that a number of Trees being blown down into an adjacent Lake gave such a bitter Tincture to the Water that no person could use it, nor any Cattle drink it, till at length an Indian urged by severe Pains in an Intermittent Fever eagerly took two or three large Draughts which cured his disorder and gave such reputation to the Waters that they were soon exhausted, and when the Lake filled by the next Rains was found without its Bitterness and Virtues, it was concluded that they both arose from the macerated Trees which had formerly been blown into it, as indeed they were soon convinced by Experiment: thus to mere accident the World owes the discovery of one of its most sovereign Remedies, and probably had it not been for this accident we should never have been made acquainted with its Virtues.

By Instinct we mean that Discretion which in different degrees is diffused thro' all Animals directing them to choose what is good and avoid whatever is evil or destructive. This faculty is possessed by Man in a degree far superior to the rest of the Animal Creation; thus we find ~~that~~ Children and childish Girls whose Stomachs abound with an Acid swallowing Chalks

Chalk, ashes and other things which will neutralize and correct this Acidity. Persons labouring under putrid disorders have a great Aversion to and cannot bear even the sight of Flesh and eagerly desire Acids and other Substances which have a Tendency to remove the disorder. By promiscuous Experiment we intend Remedies found out by hasty and indiscriminate Trials not pointed out by Reason or Instinct: in this way many valuable Remedies have been discovered.

Medicine, like all the other Arts and Sciences, was much improved by the Greeks. These people had a custom of exposing y^e Sick in the Market places and Highways for the Inspection of Passengers who recommended what they had known succeed in similar Cases. If the sick Man recovered it was considered as an indispensable Duty to hang up a Votive Tablet in the Temple of Apollo or Asculapius the patrons and the Gods of Physic. On this Tablet were written the History of the disorder under which they had laboured and the Remedies by which it had been removed. The Remedies were by these means increased beyond all Conception and their various Combinations became boundless from the Accumulation of Ingredients. This Practice was certainly productive of great disadvantages as in crowded Compositions there must frequently be a discord between the Ingredients. And from this Accumulation the Virtues of the most powerful Ingredients were obstructed by the number of inert Substances they were combined with. This was carried to an Excess in the framing of Antidotes, which when taken into the Body were to prevent the Effects of any future poison. To this we owe those enormous Compositions, the Theriaca and Mithridate; Compositions which have destroyed more Lives than the Sword of an Alexander or a Cæsar. These entirely banished all Esteem for Simplicity and effectually checked the progress and prevented the Improvement of the Science. All their Emulation was in Dexterity

Dexterity to enlarge these Superfluities first by the Grecians and afterwards. When Learning was introduced by the Arabs into ^{the} West of Europe the most profound Superstition reigned: under this Baseness of Spirit no Improvement was to be expected. The only Method by which Men of Genius could display their Talents was in commenting upon the philosophical Systems of the Antients which were invented to throw Light upon Subjects they did not at all understand: and thus they employed themselves for several Centuries. The Introduction of Chemistry instead of diminishing increased the Evil - to this we owe the Panaceas, Elixirs and other ridiculous and trifling Compositions. Physicians at this time were divided into two Sects the Chemicæ and Galenical between which there were continual Controversies; but the same blind Submission was still paid to the authority of Masters which they imposed upon themselves. When Learning again began to shine forth in the 15th Century from the darkness in which it had been long involved Physicians became anxious to acquaint themselves with a Knowledge of the Antients, they therefore collected the History of Simples from the Writings of Dioscorides and Theophrastus. But here they met with unexpected Difficulties; for first from the imperfect Descriptions left us by the Antients, it is in many Cases absolutely impossible to ascertain the Substances they made use of: secondly they were not sufficiently acquainted with Natural History to know that the Plants of Greece differ exceedingly from those of the western parts of Europe. These Circumstances served as a Bone of Contention for some time, many Virtues were ascribed by the Antients to plants without any Shadow of Reason. The erroneous and superstitious Opinion that planets have an Influence on plants proved the Cause of introducing many insignificant and ridiculous Substances into the Materia Medica and almost all the efficacious ones were at the same time banished. All the Writings on the Materia Medica were compilations from the Antients

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Ancients much deference therefore should not be paid to them. Their Ignorance appears in nothing more evident than in their crowded Compositions: Lord Bacon justly calls a great Variety of Medicines the Offspring of Ignorance. Not fewer Errors have crept into the Materia Medica from false Theories than from false Facts. Look into practical Books and you will find great Virtues attributed to Substances entirely or nearly inert: an instance or two will tend to elucidate this e.g. what great Qualities has Dover attributed to Crude Mercury and how has Boerhaave extolled the Virtues of the Radix Graminis: Substances which we now know possess very little if any Virtue at all. To avoid these Errors I shall divide my Subject under the four following Heads

- 1st The Knowledge of the Substances employed in Medicine or Diet and their Distinction from all others.
- 2nd Their Virtues in Medicine or Diet
- 3rd The Foundation of these Virtues in their sensible Qualities or Chemical properties.
- 4th Their Pharmaceutical Treatment or their artificial preparation for the purposes they are intended to answer, with the Compositions into which they enter and the Propriety of the Combination together with the dose in which it is to be given in order to produce its intended Effect.

As to the first the Substances are either Natural or Artificial: the Knowledge of the former must be obtained from Natural History, and of the latter from Chemistry. A Knowledge of Natural History is certainly of great Use to the Physician; had the Ancients been acquainted with it they would not have been engaged in so many Disputes as they were.

The second Head, as it is by much the most essential, so it will obtain by far the greatest part of our attention in the following Course. Under this Head we will first endeavour

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now to ascertain the general Virtues of the Substances and therefore the Indications they are fitted to answer: secondly we shall mention the diseases they are employed to cure, the Circumstances w^{ch} point out their Use, and the Cases in which they are contraindicated: thirdly their manner of Operation, and the doses in which they are to be administered; under this Head we will describe the particular diseases in which they are to be taken, distinguish them by characteristic Symptoms from all others and point out the Indications and the general principles upon which a Cure is to be attempted.

As to the third Head we will examine the Foundation of their Virtues in their sensible Qualities and Chemical properties and this is the only Method I know to form a proper Judgment of the Virtues of Medicines. By these means we may be enabled to discover the Virtues of some Substances that would otherwise lay hid. Thus before the Time of Sir John Pringle many Substances were supposed Antiseptic,* nay they are even prescribed to this day in this disorder, tho' they can be of no advantage and by increasing the putrefaction they may be prejudicial.

Under the fourth Head we shall consider their Pharmaceutical Treatment and the Compositions into which they enter with the propriety of their Combinations.

From hence you see that this Science is of the utmost Importance to a Physician: It is the only Criterion to judge between a regular bred Physician and an illiterate Quack. The Quack sometimes cures Disorders by his Medicines but he is not acquainted with the manner of their Operation nor the Reasons why they are indicated. He who gives a Medicine the Operation ^{of}

* which he by his Experiments proved septic: Thus Calcareous & Absorbent Earths were formerly used in the dysentery upon a supposition of their being antiseptic.

of which he does not understand or does not enquire into the Qualities on which its Virtues depend is at best but an ignorant Pretender to Physic. Van Swieten says it is scandalous for an Artificer to be ignorant of the Tools with which he operates, and the same may be said of a physician who is not versed in the Materia Medica, - he will be exposed to Ridicule from his absurd Compositions. Those who practice the Healing Art in this Country have another incentive to animate them to pursue this Knowledge. We have Reason to believe that Nature has supplied every Country with Remedies for the diseases which are peculiar to it. It would be denying the goodness of the Supreme Being to doubt of this, had we not sufficient Reason otherwise to convince us of the truth of it: a few Instances will place the matter beyond all possibility of Doubt. The Goodness of the deity appears in nothing more remarkable than in having provided Antidotes for the Bites of venomous Animals: thus in India where the Naja is the most venomous Serpent the Natives have not only an Antidote in the Radix Ophiorrhiza but also the Ichneumon or Mungos which attacks it wherever it finds it, and if it is bitten by the Serpent immediately has recourse to the Ophiorrhiza which the Natives (as just hinted) also used when bitten and always with Success when applied in time. In this Country where the Rattlesnake is the most venomous animal, we have many powerful Antidotes amongst which is the Seneca Snake Root. The Sues Venerea was not known in Europe before the discovery of America and it is generally allowed to be endemial to the Natives of this Continent, and they have a Means of curing it speedily without the Use of Mercury: they employ the Lobelia and Ceanothus. Not many Years ago a Root was discovered in the southern parts of this Continent which is said to be superior to the Bark in some things and inferior to it in nothing and is peculiarly adapted for the putrid disorders which are prevalent in those parts. Let us reflect that the Jalap the Specacuanha, the Peruvian Bark, all the richer natural Balsams are the produce of America and it is not probable that indulgent Nature should have confined her valuable produce.

productions to one part of this Continent. We know that the Indians of North America cure many diseases to which they are exposed by simple Remedies as effectually as if they were acquainted with the most costly and artificial ones and they are perhaps happy in their Ignorance of these Substances. It is our duty to enquire into the Remedies by which these Cures were performed. To animate us in our Enquiries it may be observed that new Remedies are daily discovered. Within these few Years there have been added to the Stock of the Materia Medica The Radix Iussia; the Colombo Root; the Cuprum Ammoniacum and very lately the Flowers of Zinc; Medicines of the utmost Utility in the Cure of many diseases incident to the Human Frame.

There is no doubt but that North America contains many capital Remedies. The Knowledge of the Virtues of Remedies is only to be obtained from the Natives of the Country in which they are produced which are afterwards to be established by repeated Observation. This has been the practice in every Country and it is our own Fault if we do not employ it here. There is no doubt but that in this way many valuable Remedies for the preservation of Health and the Cure of diseases may be discovered; it is at least our duty to attempt it and perhaps it may be the good Fortune of some one of us to discover a medicine equally efficacious with the peruvian Bark in the Cure of disorders. Any person who should make such a discovery would do more Service than the Founder of Hospitals and would be entitled to more eminent Distinction as a Benefactor to Mankind.

A commendable Curiosity has at all times excited persons to make themselves acquainted with the Origin, Rise and progress of the Science in which they intend to become proficient. No Science deserves more attention in this way than Medicine. For as it has always happened that Physicians have given Laws to their fellow Men and that great names have stamped a Value upon Opinions that they by no means deserved, in giving an account of the several persons who have been eminent in this Science we at the same time acquire a Knowledge of their several Theories. What therefore in other Sciences is a mere matter of Curiosity is here attended with the utmost Utility. To make you acquainted with the Theories which have prevailed in Physic is my motive for devoting one Lecture to the History of Medicine.

Some useful Arts have their Origin placed as well as ^{of} Inventors beyond the reach even of Tradition. Some have crept in to Existence without an Inventor. Some, as the dressing of Food and that of Cloathing which must at the beginning have required some Art, must have been coeval with Man. But the busy Mind used to a beginning in every thing, rests not till it finds, or imagines it finds some person to whom it may ascribe the Invention of each Art. Thus we know that Bacchus is said to have invented the Art of making Wine. The Bow and arrow are said to owe their Origin to Scythus a Son of Jupiter tho it is a Weapon used in every Country. Even Spinning on account of its great Utility has had its Origin ascribed to several remarkable persons. Thus the Egyptians ascribed it to their Goddess Isis, the Greeks to Minerva, the peruvians to Vella and the Chinese to Ya-oo. I give you these Instances to show how similar Opinions are in uncultivated Countries and how little Tradition is to be relied on. Medicine has likewise been attributed to divine Origin and with equal Reason. It is not at all probable that one person should have made such progress in Physic as to deserve the Name of an Inventor of it. It is by the successive Labors of persons that Arts are produced. We will rather suspect that Medicine is in one respect coeval with Man.

Ever

Ever since Mankind has been in the State wherein we find him now, he must have been subject to various diseases and liable to pain and Sickness occasioned by the Inclemencies of the air, Except of Diet &c tho' in a much less degree than we are now on account of their Simplicity of Life. But they must always have been more particularly liable to external Injuries which would require manual Aid. A Cure would be attempted; many things would perhaps be tried at Random; in many diseases there is a natural Instinct for many things that give relief; some diseases would be cured by Nature:—People would observe all these and apply them in similar Cases, and hence the first Origin of Medicine. The Babylonians and other Nations exposed their Sick in the Highway to the passengers, who were requested to examine if State, by which they could know whether they had ever seen persons in the like Condition and discover those Remedies they had known to be of use in like Cases. Many of those that recovered hung up Tablets in the Temples of Asculapius specifying the disease they had laboured under and by what means they had recovered. Long Life and a large Family would render a Man capable of improving in the Knowledge of Physic. Gratitude and grateful Returns might contribute in encouraging a Man to make more accurate Observations in order to be more beneficial to his Neighbours. The same motives might excite him to transmit his Knowledge to Posterity as indeed we know to have been the Case, and Medicine to have been confined for length of Years to certain Families. But still this Natural Physic, if I may be allowed the Expression, made no great Progress, untill it was cultivated as a regular Science, and carried from one State into another: thus Greece recieved it from Egypt, Rome again from Greece.

The most ancient regular Accounts of Medicine we have from Egypt. Yet even these are obscure and defective. We have an obscure account of Hermes Trismegistus who is reckoned the Father of Medicine and Philosophy in Egypt. He laid down
several

several Rules which his Successors in Medicine were obliged to follow under pain of death. He enjoined that one person should not presume to prescribe in different disorders, but confine himself to, on pain of being put to death in case the patient died. These Regulations were calculated to prevent mischief but they were a great restraint on Science. They might indeed answer in manual Operations, where great accuracy is required, but not at all in internal diseases as it would lead to the highest degree of Empiricism and yet an analogy is sometimes necessary even in Empiricism.

From Egypt the Arts and Sciences passed into Greece. Here the priests of Esculapius were chiefly entrusted with the Sick who were usually brought to the Temples to consult the Deity, and it was thought that the Cures revealed to them in a Dream from which we must conclude that a great deal of Priestcraft was connected with it. But some of the priests soon became clinical Physicians, tho the exact time is difficultly ascertained. They seem to have been particularly attentive to the prognosis. All the writings or Records of Physic were kept in the Temples, and these were at the same time the Schools of Physic, some of which became very famous as Rhodes, Knidos, Coos, Crotona &c.

This was the state of Physic untill the time of Hippocrates who was the 17th in lineal descent from Esculapius. He flourished 458 Years before Christ, and died at 104 Years of Age, one Year before the Birth of Alexander the Great and two hundred Years after Sciences had begun to flourish in Greece and when Socrates & his disciples had brought the Sciences to their highest pitch in that Country. Hippocrates was born and bred in the Isle of Cos remote from Athens at that time the Seat of Literature and where a moderate Share of abilities would acquire him great Fame which if no material Revolution happened, might by his disciples & concurring Circumstances be raised to such a Height as to make succeeding ages look on him as a prodigy. If the writings imputed to him are all taken together, they appear absurd and ridiculous, but select them and we find Observations made with accuracy

accuracy and sagacity. From hence we are led to imagine that many of those Writings that go under his name, are not really his, but the productions of some inferior Genius or personage, the Author of which to make them better received published them under his name. His fame would have been of short duration had not Galen been at pains to explain many of his obscure passages and to hold him up as a prodigy. He was the Author of the Sect of Dogmatists. His doctrine was followed untill Philinus of Cos and Serapion founded the Sect of Empirics who rejecting all reasoning were for trusting solely to Observation, History and Analogy in the Cure of Diseases. We may observe that these Empirics were very different from the Empirics of our days, who only hide their dullness, craft and Laziness under the specious name of Empiricism. It certainly requires as much time to study Empiricism properly as to become a Dogmatist.

From Greece the Arts and Sciences with Physic in their train proceeded to Rome. We shall consider in a few words the Rise & progress of Physic in Rome from its first beginning. It is well known that those Men who founded the City of Rome were a Set of Barbarians and Robbers and at the beginning were engaged in continual Wars with their Neighbours, neglecting all Sciences, nor could it be expected that Arts or Sciences could thrive in such a State. Pliny tells us that Physic was not practised in Rome for 600 Years after its Foundation. And at this time we find Cato the Censor prescribing Incantation for the Cure of a fractured Leg. But sometime before this the Esculapian Superstition had been introduced by the priests who had Temples near the Tiber as appears from some Medals handed down to us.

Archeagathus came to Rome 533 Years after the Building of the City: he was a great Surgeon and was at first received with Favor but lost it soon and was banished from the City with all the other Greek Physicians, according to the accounts given by some; this was perhaps owing to the manual Operations for which all uncivilized Nations have a great Antipathy.

Asclepeades was the first Greek Physician who came to Rome after Archeagathus; he professed to cure cito, tuto & jucundo.
He

He was very compliant denying the patients nothing that they desired. He took care not to increase the disorder by overloading the patient with Physick. He succeeded surprizingly by his specious manners, Boasting and easy Physick; and no wonder, for we find them succeed even at this day. He was the Author of the Methodic Sect.

These different Sects were swallowed upon the Appearance of Galen; who we must allow to have been a person of great merit, but his Fame was rather owing to a Train of Accidents than peculiar merit. Nico the Father of Galen was a man of Wealth and Literature and gave him an Education formed on a general plan. After the Study of Philosophy he commenced that of Physic which he prosecuted under several Masters, by which he had the advantage of hearing different Opinions: to all this he joined travelling. He was peculiarly solicitous to increase the Materia Medica and was very curious in anatomical Researches. Thus possessed of all the learning requisite to make a physician he repaired to Rome, the Capital of the World, where he found many Physicians all engaged in acquiring practice by the usual Means, extolling themselves and running down their Rivals; it was his Fate not to succeed and therefore after staying there 4 or 5 Years he returned to his native Country Pergamus. He had however gained the Favour of some Men of Science and recommended himself to the patronage of some of the higher Clafs. He was afterwards recalled by Marcus Antoninus and Lucius Verus where he acquired the greatest Esteem of the Emperor and what is of greater consequence of the Empress Faustina. He was of the Sect of the Dogmatists and established their principles by his great Reputation, high Rank and great Authority by which he suppressed all the other Sects. He wrote 500 Volumes which he so connected as to form a compleat System of Medicine. In this Interval the Roman Empire in the West was overrun and entirely ruined by the Goths and the Barbarians of the North, and all the Arts and Sciences or rather their Remains fled into the East where they continued for some time.

In the 7th Century of the Christian Era, Mahomet arose and

and overran great part of the East, took and destroyed Alexandria and as the Saracens or Mahometans are equally Enemies to Literature with the Goths, they destroyed the Library of Alexandria which at that time contained almost all the Learning of the East. The Arabs neglected all Learning until the Reign of the Caliphs of the Race of Abassides when Learning began again to be encouraged and by whose means the Greek Authors were translated into the Syrian & Arabian Languages. The first Books they got were Aristotle and afterwards Galen and did nothing but comment upon his Works. They neglected Anatomy from an Aversion to touch dead Bodies enjoined upon them by their Religion and which is peculiar to all the Eastern Nations. They contributed little or nothing to the improvement of Medicine except by adding such new diseases as were peculiar to their Country with the Remedies useful in them as the Small pox which was first written upon by Rhazes in the 10th Century and was not known in Europe until the Institution of the Crusades for the recovery of the Holy Land. With several Diseases they added the Syrups to the Materia Medica for before their time honey was used in the stead. They made some Improvements in Surgery which must always happen in manual Exercises. The Arabians brought Learning again to Europe. They past over into Spain where they established Schools, from whence Literature was spread all over Europe. This was at the end of the 11th and the beginning of the 12th Century. at this time Universities began to be founded of which that at Salerno was the first. Medicine was here taught upon the Salernical plan and here the Schola Salernitana was published and by it we may judge of the State of Learning at that time.

In the beginning of the 15th Century, Science began to shine forth in all its native Lustre. In 1453 Constantinople was taken by the Turks, which occasioned all the Men of Learning to come to the West who brought with them all the valuable Manuscripts and Learning of the Antient & Ecclesiastical Schools.

In 1460 printing was discovered, by which the Works
of

of the Ancients were made public and thus the Increase of Learning & the Advancement of the Sciences was much promoted. Men soon discovered the Superiority of the Ancients and applied to their Works.

Chemistry was till then little employed in Physic: it was entirely in the hands of Alchemists and Quacks who made some trifling Improvements. The Lues Venerea about this time made its appearance which was only to be conquered by Mercury. Antimony had not long been known. The Arts and Sciences now made a great Progress; Medicine did not increase so fast as the polite Arts. The doctrines of Galen continued to be followed, until Paracelsus appeared on the Stage. He was the Author of the Chemical Sect. His doctrines lasted about 100 Years. The most considerable of his Followers was Johannes Baptista Van Helmont. He was a person of great learning, but a wrong headed Enthusiast. To him belongs the Merit of having exploded the doctrines of Galen but he unhappily substituted his own worse ones in their room. He rejected Bloodletting and prescribed the Hot Regimen in Fevers and at length fell a Sacrifice to his own Theory and died in the 46th Year of his Age of a Pleurisy, because he would not submit to be bled in it.

The Scholastic Philosophy at this time still prevailed, altho the great Bacon flourished, who shewed that the true Method of improving Philosophy was by Observation.

The discovery of the Circulation and of the Thoracic duct for some time produced no great Alteration or Improvement in Medicine.

Francis de la Boe Sylvius Professor at Leyden was a man of an acute Genius and of extensive Learning. He was well acquainted with Anatomy, Materia Medica and Chemistry. In Sylvius we have an Instance of the Insufficiency and fallacy of human Reasoning. Notwithstanding all his Knowledge he fell into a wrong Theory. He supposed the Cause of Fever to be an Acid and of consequence gave Alkalies to cure it. No Theory that ever existed was so productive of Mischief to Mankind as

as it spread universally. If any who were treated in this Method escaped, they may justly be said to have passed thro a fiery Trial. Sydenham prescribed Opium very freely and it is said he himself died from too great a dose of it.

Sydenham was inferior to Sylvius in Education but far superior to him in Judgement and a peculiar Talent for Observation. He appears to have been one of the greatest Practitioners that ever lived. He had not much knowledge of Books but was well acquainted with the writings of Hippocrates, but was not a servile Imitator even of him. He is a perfect Model of Integrity and Candor. He is commonly said to have had no Theory: but this is not the Case for no practice can exist without Theory. He was in deed not addicted to Theory and it is probable never entertained a Theory after he had reason to doubt of its Truth. He gave Opiates freely but judiciously and first introduced the simple practice. He was more esteemed by Foreigners than by his Country men who called him a Quack. He first observed that the same disease in different Circumstances required very different Methods of treatment.

The Mechanical Physicians arose about this Time who considered the Body as a mere Hydraulic Machine, never regarding the mind or sentient principle but were for demonstrating every phenomenon on Mathematical principles, thus forming very strange Theories with regard to the Cure of diseases - They were superseded by Hoffman, Stahl and Boerhaave each of whom formed a System which has numerous Followers to this day.

Hoffman was an Admirer of the Mechanical System and was well versed in Chemistry. He was a plain, goodnatured honest candid Man. He is often tedious. He first took notice of the Sentient principle. He and Stahl were contemporaries and Rivals and for a long time divided all Germany between them. Hoffman was rather credulous and too fond of his Nostrums (the preparations of which he kept a secret) and which he extols highly and attributes great and cardinal Virtues to them.

Stahl —

Stahl was first raised by Hoffmann, but soon became the Rival of his Patron. He was a man of an acute and penetrating Genius. From some hints thrown out by Plato, Dolcius Wepfer and others he supposed the rational Soul to preside over the system. He ascribed the greatest part of diseases to a Plethora, and attributed all Crises and the like Efforts of Nature to a Rational Soul. From the notion of Plethora he made great use of Aloetics to promote the Hemorrhoidal discharge & thereby to diminish that plethora. He may be consulted with advantage in diseases arising from obstructed Menses, in Hemorrhages and in other disorders which are owing to plethora. He was the Head of a numerous Sect in Germany. His followers were particularly accurate in giving the History of diseases. He first attended to the Nervous System.

Boerhave lived about the same time. Every Branch of Medicine is much indebted to him. He was a Man of incredible Application and solid Genius. He was very eloquent and by that means recommended his Doctrines much to his Pupils. He was attached to no Sect but took what he thought proper from them all and thus formed a complete System. He took the doctrine of Lents and Obstructions from Bellini and the Mechanical Physicians; of Acids and Alkalies from the Chymists and of plethora from Galen. He however entirely neglected the Nervous System. For this some of his disciples made amends, particularly Haller who has very particularly considered the Laws of the Nervous System.

The present System is now complete as it takes in all the parts tho by no means perfect. Altho Anatomy Botany and Chemistry seem to have arisen nearly to their highest degree of perfection; Medicine seems at present to be in a low State.

From this Sketch of the History of Medicine we may learn many important Lessons. We may observe that systems are of infinite prejudice in Medicine. They are a refuge for Idleness and are a kind of Common-Place Book to which the indolent may have recourse on all occasions. Within these thirty Years Medicine has made no Improvement except in the Island of Great Britain. In Great Britain where no Man ever rose to such a pitch as to dictate to his Countrymen Medicine has been more improved than any where else tho 50 Years ago, the British were inferior in Medical Knowledge to their Neighbours.

We also learn the Mischief arising from Theory and false Speculation and that Theories ought never to be admitted but when founded on Facts.

The Variety of Sentiments which prevail on the Animal Economy render it necessary for me to give you my Opinion on this Head as it will tend to assist us in accounting for the Operation of Medicines and will enable you to understand me the better hereafter. These Opinions will probably appear new to many of you on account of their being so different from the Sentiments of the generality of Writers. I would not wish to influence your Opinion in preference to your Judgment and I shall endeavour to give you nothing but what appears to me to be both true and of service in the Practice of Physic.

The most ancient Opinion is that of the Rational Soul presiding over and directing the animal Functions. This Notion was held by Plato, Helmont, Doleus, Wepfer and particularly by Stahl. This last was as I have already observ'd, the Rival of Hoffman. He revived this Opinion and ushered it into the World with all the Advantages arising from extensive Learning and great Genius. He had numerous Followers in Germany and in other parts of Europe: in many places in Germany his Doctrine is still received. D.^r Nicholls of London and D.^r Porterfield of Edinburgh are the only persons in Britain who have embraced his Opinion.

Stahl and his Followers from their notion of the ^{action of the} Soul, in general, that they might not disturb her in ~~her~~ Operations, employed but weak and in general trifling Medicines: and this will always be the case with those who trust too much to the Operation of Nature.

Another Opinion is that of Borelli Bellini, Pitcairn and others who considered the Body as a mere Hydraulic Machine and attempted to account for the Operation of Medicines entirely upon mathematical principles, the size, Figure &c. of the particles. They entirely neglected the nervous System which in my Opinion is most to be regarded in accounting for the Operation of Medicines.

The Body consists of three parts, the simple Fibre the moving Fibre or Solida viva and the Fluids. By the Solida viva

19.
viva or moving Fibre we mean all those parts that are endued with Sensibility and Irritability. Of these properties the Nervous power & Sensorium Commune are the Foundation. The extent of the nervous power over the System is ^{very} considerable. It is found in the Muscles of Voluntary Motion and wherever Muscular Fibres are found, in the Alimentary Canal, in the Bronchia and Lungs, in the Heart and Arteries, in the Glands and Excretories and in the whole Lymphatic and absorbent Systems. The Simple Fibres and Fluids have neither Sensibility nor Irritability.

Much Stress is commonly laid upon the laxity and rigidity of the simple Fibre and Medicines are generally prescribed to produce a Change in them, this is not entirely to be disregarded. They seem however to increase uniformly in Firmness as the person advances in age and I can have no Idea of any disease in Old people from their laxity or in Children from their rigidity. I believe it is little in our power to produce any change in them. If any change occurs from Medicines it is from Alterations made on the moving Fibres. If any change can be brought about it must be very gradual, and Exercise and diet will do more towards it than all the Medicines we can employ.

Since the discovery of the Circulation, Physicians have applied themselves to the Hydraulic Mechanical System and have fallen into many Absurdities. They have in general considered the secreted Fluids as a Criterion of the State of the Fluids whereas the Appearance of these different Secretions should in general be ascribed to the State of the Secretory Organs. The Augmentation, Diminution and Acrimony of the Secretions have been ascribed to the different State of the Fluids. Urine has in almost all Ages been considered as a Criterion of the State of the Blood. I shall give you an Instance here to show you what Absurdities even great Men will be guilty of when they suffer themselves to be led away by wrong Theories. Quackham speaking of pale limpid Urine which occurs as a bad Symptom in fevers foreboding Delirium, supposes it to be owing to a separation of the Red Globules & Coagulable Lymph from the Serum & advises Acids and Saponaceous drinks to be employed to unite more readily the separate Portions. Acids are proper to moderate the Heat and allay the Thirst, but on a very different principle from what Quackham supposes. This Separation

Separation it is certain could not possibly happen whilst Life remains. If we ascribe this appearance to a Spasm affecting the Kidneys we find that acids are indeed proper, and we find why it is a fatal Symptom from the Spasm affecting both the internal & external parts of the Body

Most diseases have been ascribed to the different State of the Blood, its acrimony, density &c. But in my Opinion these Considerations may in general be omitted or entirely disregarded. The State of the Fluids depends entirely on the State of the Solids. Thus in a strong and rigid Habit of Body we find a rich dense Blood; in a weak relaxed Habit we find the Blood thin and watery. Physicians have commonly directed Medicines to be given to obviate the different kinds of acrimony which they supposed to take place. There is however but one species of Acrimony agreed upon, the putrid, which occurs in the Scurvy. In this case however we can do nothing with Medicine without a vegetable diet; & if a Vegetable diet can be procured no farther Medicine is necessary. Medicines taken into the Stomach can have no considerable Effect in changing the State of the Fluids, as they there suffer the powers of digestion, are converted into Chyle, and have their Virtues changed by being rendered mild and inert. I accept saline Substances which are taken up into the Blood unaltered; they are however only suspended in the Serum and pass off quickly by Urine and can never change the Fluids: if we give a large quantity of them they will prove purgatives & none will then be taken up. This is likewise the case with all those acrimonious Medicines which would have a chance of producing an Alteration in the State of the Fluids. As the simple Fibres and Fluids are not acted upon by Medicines, they must of consequence exert their effects solely on the solida viva or moving Fibres which are endued with Sensibility and Irritability which depend on the Nervous power, Brain and Sensorium Commune or sentient principle.

The Nervous System has a very general Consent over the whole System and thus pain and pleasure are communicated from one part to another: Thus a locked Jaw is most commonly produced from a puncture or hurt of a Nerve in the Extremities: it is produced by the Consent of one part with another. But though this
Consent

Consent is general, yet some particular parts are more liable to be affected than others. I do not pretend to give you all the different consents for that would be impossible. I only at present speak of one, that of the Stomach which is more particularly to be regarded in accounting for the Operation of Medicines.

Nothing has more considerable Effects on the Mind than a disordered State of the Stomach, and the Stomach is likewise much affected by the State of the Mind. This we see in Hypochondriac persons, whose disease which is chiefly situated in the Stomach, produces grievous Effects on the Mind or Sensorium Commune or the Seat of it in the Head. In Wounds of the Head the poraceous Vomiting of Bile proceeds from a consent between the Stomach and Liver. Secondly the Stomach has a considerable Consent with the Heart and Lungs independant of the Vicinity of those parts. The palpitation of the Heart in Hysterics and Hypochondriac Cases is owing to this Consent and nothing will sooner relieve it than a small Quantity of Brandy, Wine, Rum or any other Cordial, that will remove the Irritability of the Stomach. I have known the pulse to beat 140 Strokes in a minute, where the Gout has passed from the Extremities to the Stomach, but upon taking any Stimulant as Brandy, Wine &c which would send the Gout back to the Extremities, the pulse would return to its usual state. Nothing is more common than Indigestion & Acidity producing a Fit of the Asthma in persons subject to that disorder and when the disorder is removed in the Stomach the person is freed likewise from the Asthma for the time. There subsists also a considerable Consent between the Stomach and Extremities. This persons subject to the Gout often experience in its sudden Transitions from the Extremities to the Stomach and vice versa. This disorder never gets into the Stomach when it is in a proper State and only affects it when relaxed. The Stomach is connected with the surface of the Body and with the small Vessels over the whole Frame. This is evident from various Considerations. No sooner do some Aliments reach the Stomach of particular persons than Spots and Efflorescences are produced on the Skin. Van Swieten has an Instance of a person who could not take the smallest Quantity of Crabs Eyes without these Effects being produced. I myself knew a person afflicted with the hypochondriac disease, who was relieved of his Complaint by pimples appearing between his Thumb and

and Pore-fingers and as immediately oppressed upon their Retropulsion or disappearing. These Appearances are commonly supposed to be owing to Acrimony of the Fluids but falsely, as they are produced instantaneously.

Coming from a constriction of Cutaneous pores is another proof of this Consent. This most commonly occurs in the Cold Fit of Intermittents when every Body allows the constriction to take place. Nothing will sooner check this Vomiting than a draught of cold Water and we find that the same Application will oftentimes produce Sweat more readily than our most powerful sudorific and diaphoretic & diaphoretic Medicines. Diarrhoeas and Dysenteries are frequently if not always owing to a constriction of cutaneous pores and a suppression of the perspiration, and we cannot cure them unless we first restore the perspiration. These disorders are most commonly ascribed to a vitiated State of the Fluids, but this cannot be the Case, for if it were, they would come on gradually when, as we find them to come on almost instantaneously after exposure to Cold and are as instantly cured.

The principles of diseases are not as is commonly supposed, lodged in the simple Fibres or Fluids. The Fluids may be affected secondarily: but the Cause of most diseases appears to be placed in the Solida viva and Sensorium Commune, which being endued with Sensibility and Irritability are more liable to be affected than the Simple Fibres or Fluids. Thus it is a very general practice and a very judicious one to exhibit a Vomit in Intermittent Fevers before giving the Bark or any other Medicine to check the Fever. The good Effects however do not depend upon the Evacuation of the Contents of the Stomach which is produced, but entirely on the sudorific and diaphoretic Qualities by which the Constriction of the Surface of the Skin is taken off. This is evident from the same good Effects being produced when the Medicine is given in such small doses as not to occasion an Evacuation but only a Nausea. The Bark should never be given before a determination to the Surface is produced by these Means, as it can otherwise do no good and may even do a great deal of Mischief. When Astringents are employed to check Hemorrhages of the Uterus or any distant part, they exert their Effects oftentimes, before they could possibly arrive at the part by means of the Circulation. When

Opium is used to relieve any Irritation as a Cough, we find the Person much easier as soon as the Opium has arrived in the Stomach. It must therefore act on the Nervous System. The Experiments of Dr Monro, P.A. in Edinburgh prove this beyond a doubt. He instituted his Experiments on Frogs, which Animals will live a considerable time without their Hearts. After taking out the Heart of a Frog, he applied Opium to the Muscles of the leg laid bare and found it exerted its Effects in the same manner as when the Heart remained: that is, the Animal was deprived of Sensibility and the power of Motion. He then applied the Spirit of Hartshorn and roused the Animal from the Insensibility into which it had been thrown by the Application of the Opium. Here the Medicines must surely have acted on the Nervous System, as the Circulation was entirely destroyed by the heart being removed.

From what has been said I am inclined to form this Conclusion that all Medicines exert their Effects on the Body by Operating on the Nervous System and those taken into the Stomach by being applied to the Nerves of that Organ, which are very numerous; and not by being taken up into Vessels.

I hope I shall be justified in making the following Conclusions from what I have said. That our Body physiologically considered consists of three parts, Solida viva or moving Fibres, simple Fibres and Fluids. That diseases must be lodged in one or other of these parts. That the moving Fibres from their Sensibility and Irritability are oftener affected than the simple Fibres or Fluids. That Medicines at least those which produce strong Effects act on the Nervous System. That the Laxity or Rigidity of the simple Fibres is a fixed and constitutional Infirmary and not an occasional disease to be removed by Medicine. That the diseases of the Fluids are not so numerous as from looking into Authors we find they are imagined to be and when they are affected they are rather to be changed and restored to their healthy State gradually by milder Remedies and Diet.

The.

The *Materia Medica* comprehends everything that is used in Medicine or diet. The pharmaceutical Branch has been commonly thought to be the whole that belonged to this Subject. But surely the dietetical part deserves a place as well as that more strictly termed medicinal, as the Cure of diseases oftentimes depends as much upon a well regulated ^{Diet} as upon the Exhibition of proper Medicines.

The Books that are best calculated to assist us in our Enquiries upon this Subject are the following. Lewis in his *Materia Medica* and the new Dispensatory has given us something useful; but they are rather to be considered as the loose disjointed ^{Materials} than a proper System of *Materia Medica*. He follows the Alphabetical Order by which means his Subject is so interrupted that it is impossible for the Reader to follow him regularly and he is therefore only fit for occasional Consultations.

Geoffroi has first divided the Substances as got from the three Kingdoms and in the Vegetable he again subdivides them according to the different parts of the plants made use of as Roots, Herbs, Barks &c. But in treating of the individuals he has fallen into the same Error & is liable to the same Objections with the Author of the new Dispensatory. You are to observe that his first and second Volumes are much preferable to the succeeding ones, for these were published under his own Inspection. The others were published after his decease from erroneous Notes of his Scholars and oftentimes contain Sentiments quite contrary to his real ones.

The celebrated Sennæus has followed the Botanical Order in describing the Virtues of Substances belonging to the *Materia Medica*. But though plants of the same Order and Genus are frequently found to correspond in Medical Virtues, yet as it does not hold universally, it is liable to exception.

Cartheuser's plan is less exceptionable and preferable to any other. He ranks them according to their sensible Qualities, by which means you have a Number of Substances connected which correspond in Medical Virtues. But this plan is not quite sufficient and he is obliged in many places to follow Indications in the Cure of disorders. This plan is also pursued by the celebrated Dr Meurnan.

There

There is no doubt but Cartheusens plan is the most preferable. He distributes the Medicines according to the Indications they answer and thence infers their Utility in the several diseases. This plan is also followed by Dr. Cullen of Edinburgh, whose *Materia Medica* published here some time ago, is, I suppose in all your hands. Cullen has all the Advantage of any of the others and is not liable to their Exceptions. In the Copy published here Dr. Cullen was not at all concerned and it appears to have been printed from the imperfect Notes of some Students who attended his Lectures. It is not so perfect as we could wish it to be, or as we would expect it to be, had it come from the Doctor himself, who is so ingenious a Man and skilful a Practitioner. Imperfect as it is, it is but doing justice to the Book, to say, that it exceeds almost every thing, that has been heretofore published on the *Materia Medica*. The plan which is pursued in this Work is exactly the same toth the one I shall follow in the Course of Lectures and for this Reason it will be particularly useful to you. Great part of our Time would be spent in making general Observations and Reflections If we had not such a Work, where as now I shall have more time to make applications of the *Materia Medica* to the practice. I am informed that a new Edition of this Work will soon be published under the Inspection of Dr. Cullen himself, which we may reasonably suppose will exceed any thing that has ever been published on this Branch. By possessing Dr. Cullen's *Materia Medica* and practice of Physic you will be enabled to attend these Lectures with greater advantage. In his practice you will find the History of diseases delivered in a very accurate manner and by attending to this and the Course of practice he delivers you will reap more advantage from these Lectures than you would otherwise do.

In Imitation of Dr. Cullen I shall distribute Medicines under three Heads according as they are directed to act 1st upon the Simple Fibre; 2nd the moving Fibre and 3rd the Fluids. These general divisions are again subdivided into Classes comprehending Medicines of similar Virtues. It is to be observed that these general divisions are entirely arbitrary and calculated merely to assist the Memory. It is however no Matter whether they are entirely proper or not provided the Classifications are exact. An Instance of their not being exact we have in ranking Astringents with those Medicines which act on the simple Fibres whereas their principal Action is on the moving Fibre.

The

The first Class to be considered are the *Nutrientia.*

By this Term we mean every thing employed by Mankind in their daily Food and thus comprehend under it not only those Substances which are calculated for the Nourishment of the Body but also those Substances which are taken in along with our Food to render it palatable.

All our Aliment is of two kinds Vegetable or Animal. As all Animals even those that live on other Animals originally live upon Vegetables, it seems proper to consider Vegetable Aliment first.

Vegetables are subdivided into those which serve for Medicine and those ^{ch} which are more properly adapted for Nourishment. The mild, bland, insipid, inodorous Vegetables are most proper for Nourishment, while the acid, bitter, nauseous and those of a strong Smell best answer the purposes of Medicine. It is however probable that there is no plant but what affords Aliment to some Animal or other, for it is not to be supposed that any thing is made in vain, thus some of the rankest Poisons to Man are innocent to other Animals; & some innocent to Man will kill other Animals. A few Instances will tend to illustrate this: Hemlock which is very poisonous to Man and which was employed by the Ancients to deprive their State prisoners of life, affords a wholesome and agreeable Food to the Horse whilst Ground Ivy which is at least innocent to Man will kill the Horse, if he eats any Quantity of it.

Many Vegetables of an acid nature may by roasting or boiling be rendered mild. The Indian Turnep which in its recent state is very acid, by roasting is rendered perfectly mild and then affords a wholesome and agreeable Food. The Cassada which in its recent state is very poisonous, by proper preparation affords Bread to most of the Inhabitants of the West Indies. In general however we may observe that none but mild and bland Substances are fit for Food or Nourishment. Mustard, Cresses & all the other acid Substances and Spices we employ in diet of which the chief are the aromatics as pepper &c are not used as nourishment but merely to correct any bad tendency in our Aliment or to render it more palatable. These are called Condiments.

Before we proceed any further it may not be improper to enquire into the Causes of Hunger. Were we to consult our own Feelings we should not find it difficult

difficult to define the Cause of Hunger. But Physicians cannot be contented with Simplicity and what is evident to every person: Refinement is necessary to shew their Ingenuity; and however paradoxical it may appear, it is certain that few Physiologists have been of the same Opinion with regard to the Cause of this Sensation. The celebrated Hoffman attributes it to an Acid remaining in the Stomach from the former Meal and this Opinion he thought confirmed from the well known Fact, that Acids taken into the Stomach, create or increase this Appetite. The Stomach is often times entirely emptied by Vomits and purges, and Hunger still remains and is oftentimes increased: This single Consideration sufficiently refutes Hoffman's Theory.

Boerhaave, Haller and others suppose Hunger to arise from a rubbing or Friction of the Folds of the Stomach against each other. They reason thus: When the Stomach is empty, it being a Muscular Organ, will contract & the opposite sides being brought together the Folds will rub against each other and produce Hunger. But the Structure of the Stomach will sufficiently refute this Theory; for as it is round or conical it is impossible for it to contract so much as to bring its opposite sides into Contact, and even if it could the Coats are so defended with Mucus, that no uneasiness could be produced, unless the Stomach was diseased or the Mucus abraded. This Theory therefore will apply no more than the former. Hunger is to be accounted for, solely from the Emptiness of the Stomach. I am fully convinced that no person in Health ever craves Food while his Stomach is full, nor untill it is relieved from the load of the former Meal. Altho at times we find persons who feel no Hunger when the Stomach is empty and others who are continually craving tho' the Stomach is full; yet these persons are never to be considered as enjoying a good State of Health and Instances taken from a diseased State ought not to be employed in accounting for any thing in a sound state. The continual craving for Food seems to be owing to some affection of the Nerves of the Stomach. When we come to treat of Indigestion we shall consider the causes to which a loss of Appetite is owing.

It has been a Question often debated whether Man was intended to live upon an Animal or a Vegetable diet? We shall pay some attention to this Particular.

Not only some particular Men, but also whole Nations in all ages have

have subsisted solely on Vegetable Diet. The Persians and great part of the Inhabitants of the Southern parts of Asia live almost solely on dates. In the great Cities of Grand Cairo and Constantinople, the poorer sort of people live almost entirely on Cucumbers. The Arab lives on Fruit, Water and Goats Milk. The Capada alone formerly afforded Subsistence to the wilder Inhabitants of the East India Islands. In the Highlands of Scotland we find the people in general live and grow robust on Oats and Onions. On the contrary there are some Nations and those not fewer in Number who live entirely on Animal Diet. Thus great part of the Inhabitants of Africa live upon Fish. The Inhabitants of the Northern Countries as Lapland, Greenland, Iceland &c where the Ground is covered almost the whole of the Year with Frost and Snow, so that the Earth cannot furnish Vegetables for their Subsistence are constrained to live almost entirely on Fish and such other Animals as they can procure. The best accounts assure us, that the wandering Scythians and their descendants the Tartars live almost wholly on Animal Food. The Patagonians are said to have a great Aversion to Bread and are very fond of Animal Food particularly of Horse Flesh. A Nation has been lately discovered in the Eastern Archipelago, whose Country is so barren as not to produce any Vegetable not even Grass, so that no Animal can live there except Man. These people subsist entirely on the shell fish which the sea throws up on the shore, at every Flood Tide; They spend the whole period of a miserable and wretched existence in searching for Food, and are but one degree removed from the lowest of the Animal Creation. Man appears upon the whole to be intended by Nature to live upon both Animal and Vegetable Food. He has both the Dentes Caninarii and molares; that is the cutting Teeth peculiar to the Carnivorous, and the Grinders of the Herbivorous Animals. The Intestines of carnivorous Animals are very short, as their Aliment is already of an Animal Nature and requires ^{long} no digestion. Herbivorous Animals have long Intestines, because their Food requires a long digestion before it can be converted into an Animal Nature and there is therefore less danger from putrefaction taking place in too great a degree. We find the Intestines of a Man neither so long as the one nor so short as the other but in a middle state between them. We find from Experience that persons who subsist on Vegetables are weak & relaxed and constantly subject to Disorders of the Bowels. An Animal Diet produces more dangerous diseases, Eruptions on the Skin, the Scurvy, the Leprosy, Dysentery

tery and other putrid and Malignant Disorders are often the Consequence of too free a Use of Animal Food. It conduces to the Health of Man to partake of both. In general, now a days the Use of Vegetables is most indulged by the Inhabitants of the warmer Climates, while the Inhabitants of the North live principally on an Animal Diet. This is consistent both with Reason and Experience.

Of Condiments those that are most generally employed are Salt, Vinegar and Sugar. Salt is employed with Animal Food to render it more savoury. It also resists putrefaction. Sugar is the most wholesome Condiment we can employ. It is very nutritious and we may justly assert that all Vegetables are more or less nourishing in proportion to the Sugar they contain. It is a powerful ^{antiseptic} and hence is useful in putrid diseases. Dr Pingle thinks that the less frequent appearance of the Plague and other malignant Disorders in Europe of late than formerly is owing to the more general use of Sugar. It may be extracted from all the esculent plants.

Whatever Aliment we make use of, Chyle is formed from it, which is taken up from the Intestines by the absorbent Vessels created for that purpose and by them conveyed into the Thoracic Duct which opens into the left subclavian Vein, where the Chyle is mixed with the whole Mass of Blood, from which afterwards all the different Secretions are made, as Urine, Bile, Semen &c. None of these Fluids are originally or at least formally present in the Blood: no more than Rum is contained in Sugar or Spirits in Wheat or Rye.

We shall now consider digestion that process by which our Aliment is converted into Chyle. We shall first consider the Liquors subservient to this process which are Saliva, Liquor Gastricus, Bile and Pancreatic Juice.

The Saliva by Experiment appears to be composed of Water and a small Quantity of a certain viscid Matter with the Nature of which we are but little acquainted. Heat resolves it into the same Materials with other Animal Liquors. The first person from whom we received any proper Notion of the Use of the Saliva was Dr Pingle and afterwards Dr Macbride. From the Experiments of Dr Pingle it appears that upon adding it to a Mixture of Beef Bread and Water it promoted Fermentation but at the same time moderated that Fermentation so as to prevent it from running into the acetous or putrefactive and it probably may have the same use in the Body. It is very apt to form Concretions or Calculi like those of the Urine. The Concretions or Calculi are often found in the salivary ducts particularly those under the Tongue. The Concretions

cretions that are formed about the Roots of the Teeth are owing to the Saliva.

With the Gastric Liquor we are still less acquainted than with the Saliva, as it is difficult to get any of it in a pure State. Nothing tends to show the Nature and use of it more than the Experiments of M^r. Reaumur on different Birds. He instituted these Experiments with a View to determine the disputes of the Paris Academicians concerning the Manner in which Digestion is performed. His Experiments are not only ingenious but very accurate.

The Chemical Physicians ascribed Digestion to a Solvent which they said acted like Aqua fortis. They even pretended to determine it to be a very strong Acid. The Mechanical Physicians as Borelli, Bellini & Pitcairne, ascribed it solely to Triture and Mechanical Force. They considered the Stomach as a Muscular Organ and after finding the Force which smaller Muscles could exert they endeavoured to compute the Force of the Stomach. M^r. Reaumur shewed that neither were entirely right, though perhaps neither were wholly wrong. He began with a Turkey, a Fowl whose Stomach is remarkably strong and muscular and which always swallows small stones to assist its Digestion. He made it swallow Glass Tubes which he found broken in its Stomach after some time. He then tried thin Metal ones which tho' not broken were compressed and rendered perfectly flat. He proceeded untill he got Tubes strong enough to resist the Force of the Stomach. In these Tubes he inclosed Grains of Barley and stopp'd up the Ends in such a manner that nothing could escape unless in a Fluid Form. After these Tubes had remained in the Stomach two or three days he found that no change had taken place except that the Grains were swelled but not more than they would have been had they been soaked in any other Liquor with the same degree of Heat. In this Fowl, then, Digestion seems to be carried on wholly by Mechanical Force and the Gastric Juice does not act as a Solvent. Its Conversion into Chyle certainly depends upon the mixture of certain Fluids, but the first digestion in the Stomach of this Bird depends on Mechanical Triture.

He next tried Experiments upon a Hawk whose Stomach is very thin and membranous. This Fowl is particularly fitted for such Experiments as it throws up whatever it has not digested. He found the thinnest Tubes could resist the Force of its Stomach. He inclosed in perforated Tubes
Flesh

Flesh and found it converted into a mere Mucus without any bad Smell. He tried the hard Bones of an Ox and found them dissolved also. He then inclosed Grains of Barley which were thrown up without being in the least changed. Here then we have a Solvent of a very curious Nature which will dissolve Flesh and even Bones and yet has no effect on Vegetables or even on the Stomach of the Animal. From this we are not to infer that the Gastric Fluid of Man acts as that of either the Turkey or the Hawk. In the Human Stomach Digestion seems to be carried on entirely by Fermentation. There is no doubt but that the full digestion or Conversion of our Aliment into Chyle depends upon the Mixture of certain Fluids. But the first Digestion in the Stomach seems to depend wholly upon a Fermentation, of this there are three Species, the Vinous, Acetous and putrefactive. Of their principles we are entirely ignorant. We cannot explain them and can only make you acquainted with them by Analogy. Of the Vinous Fermentation we have an Instance in Wine, Beer, Cyder &c. when these Liquors turn sour we term it the Acetous Fermentation. The putrefactive Fermentation more commonly occurs in Animal Bodies; the Vegetables are also capable of it. All Substances pass thro' these different Species of Fermentation before they become putrid. The Vinous and acetous Fermentation take place in the Stomach and the putrefactive occurs in the Intestines. All the Aliment in the Stomach is acetous, even Flesh, for an Acid can be obtained from the Stomach of all Animals even those that are Carnivorous, and the Stomach of all Animals will coagulate Milk. Persons who have for several days lived on Animal Food, when they vomit throw up an Acid.

The acetous Aliment is mixed in the Duodenum with the Bile & is there rendered of an Animal Nature. Bile is another Fluid which is of Service in the digestion of our Aliment. It is only since the Experiments of Dr. Ramsay, Professor of Natural History at Edinburgh, have been published that we have any tolerable Notions concerning the Nature of the Bile. Dr. Macbuz has since prosecuted this Subject. These Experiments were made on the Bile of different Animals but more particularly on that of the Ox, from the Nature of which last all the Opinions concerning the Nature of the Human Bile have been formed. The Bile has been supposed to be of an Alkaliescent or putrescent Nature and that by this property it neutralized the acetous Aliment. It has been supposed to be of a
saponaceous

saponaceous nature and that by this Quality it was of use to promote the mixture of the Oily and Watery parts of our Aliment. Dr. Ramsay's Experiments sufficiently refute both these Opinions, when he attempted to mix Oil and Water by it, he constantly found his Endeavours fruitless. He found he could not succeed so well with it as with a Solution of Sugar which is far inferior in this respect to a Mucilage. That it is not alkaliescent or putrescent is evident from its standing many Years without becoming putrid. It will indeed emit a musty smell, but will not smell putrid or generate Insects. All the fossil Acids, e.g. the Vitriolic have the power of precipitating the greater part of the Bile in which the Bitterness is lodged. Four parts of Vinegar added to five parts of Bile produced a sweet Liquor which would not coagulate Milk altho' the least particle of Vinegar will do it separately. Bile mixed with Water and Spirit of Wine without much Separation of parts — From hence it appears plain that the Bile does not by any alkaliescent tendency neutralize the aciescent Aliment. All Animals are provided with Bile, both Carnivorous and herbivorous. In the latter were it putrescent it might not be productive of much Inconvenience, but in the former it would certainly be highly injurious. We can assign a much better use for it. All Bitters prevent Fermentation. The Bile is one of the strongest Bitters in Nature and from this Quality tends to prevent an immoderate Fermentation either of the acetous or putrefactive kind from taking place in the Intestines. Thus we add Hops to Beer to prevent its turning sour. We administer the Bark in Cases of prevailing acid in the Stomach. We also administer this Remedy in Dysentery and other putrid Disorders. Meat wrapped in Wormwood is preserved from putrefaction.

In the Stomach there is always an Acetous Fermentation which verges to the putrefactive in the Intestines. We are little acquainted with the pancreatic Juice. It appears to be of the same Nature with the Saliva. It probably acts principally as a diluent to the Bile. It may also assist in preventing an immoderate Fermentation.

I have now considered the Liquors subservient to digestion and have endeavoured to establish Fermentation as the Cause on which this process depends. I must now take Notice of a Theory which endeavours to account for this process entirely from Solution and considers the Gastric Liquor as a Solvent. The Basis of this Theory are some Experiments published

published by Dr. Stevens upon taking a Doctor's Degree at Edinburgh. The person on whom those Experiments were made was an Hungarian Soldier who possessed the singular property of digesting stony Matters. This Wretch supported a miserable Existence by swallowing Stones for a trifling pecuniary Gratification. His Excrements appeared like Mortar. He would swallow Stones until his Stomach was greatly distended and upon being struck externally the Friction of the Stones could readily be heard. Various kinds of Meats roasted, boiled and raw were inclosed in Tubes of Silver and Ivory perforated with Holes or Apertures to admit the Juices of the Stomach. These were swallowed by this devourer of Stones and discharged at different times by Vomits, purges and in the natural way by Stool in order to observe the Changes which were produced. These Substances were found always more or less dissolved according to the Time they had remained with him and no other Change was produced. They were neither acid nor putrid and of consequence could not have undergone any Fermentation. Whether these are sufficient to establish this Theory remains to be determined. With regard to the Experiments, there is no reason to doubt the Truth or accuracy of them; but whether phenomena taken from a Body so essentially different from all the rest of the human Species should be considered as generally applicable requires the most serious Attention. It is certain some degree of acidity is present in every Stomach and some degree of Fermentation is necessary to produce this acidity. You will also observe from these Experiments that the Flesh of Young Animals and that which is well done was easier of digestion than the Flesh of older Animals and that which was rare done, which is likewise contrary to the general Opinion. Vegetables also of all kinds were much longer digesting than Animal Substances ~ Digestion then in the Human Stomach appears to depend on Fermentation as well as Solution.

All Vegetables are nutritious in proportion to the Sugar and Oil they contain and according as they are blended together and form the farinaceous Substance proper for Nourishment. The more Sugar or Oil any Vegetable contains the more Nourishment it will afford provided our Organs are capable of assimilating it. Thus Rye being a sweeter Grain than Wheat affords more Nourishment to the hardy Labourer and others who can assimilate it. It is however from this Sweetness more Fermentable and is thus apt to prove purgative, for which Reason it is recommended to those who are troubled

troubled with habitual Costiveness, provided they are not subject to Hysteria or Hypochondriac diseases. The Costiveness which occurs in these Habits is not owing to Rigidity but to Laxity and loss of Tone. In robust and plethoric Habits Vegetable Aliment affords the most relief. I have often known persons cured of this Complaint by eating Rye-Mush and Milk. When Costiveness is owing to laxity as in Hysteria, an Animal diet is certainly the most proper. When it is owing to Rigidity and increased peristaltic Motion a Vegetable Diet proves useful. A Vegetable diet is very hurtful to persons troubled with Indigestions and Flatulencies &c. The stomach here already abounds with an Acid: the Fermentation increases this. Besides fixed Air or what was formerly called Gas sylvestre is generated which has the power of destroying the Contractility and Mobility of the Stomach and Intestines: hence arise frequent Syncope and Death. Women of a tender and delicate Constitution are frequently seized with Faintings and Convulsions from this Cause, more especially after eating Apples and Milk. There are certain Vegetables as Cabbages, Peas &c which are particularly disposed to produce grievous Effects in such persons. These bad Effects do not seem to arise from their Acidity, as they are possessed of that in a small degree but these Substances, being of a tough firm Texture will remain a long time in the Stomach and whilst they are undergoing the Venous Fermentation, will evolve a large Quantity of Fixed Air or Gas sylvestre which will distend the Stomach and Intestines and produce violent pain and distension in particular parts. That this is really the Case appears from our using split peas, which being deprived of their outer husks are rendered much more soluble and may be used without bad Consequences. Children are particularly liable to be affected with Flatulencies and Indigestion from Vegetables particularly from Nuts unripe, crude Fruit, pastry &c which often produce Convulsions. The best thing to give them relief in these Cases is to administer an Emetic instantly. Whenever I am called to a Child in Convulsions I always enquire whether it has eat any thing which might lay on its Stomach and produce these Effects. I have known not only Children affected in this Manner but also strong Men particularly from eating Apples and Milk. These were to all appearances in a Fit of the Apoplexy. They are almost always relieved by an Emetic. The small frequent pulse in this Case sufficiently characterizes it from an

an Apoplexy in which a very different Method of treatment is necessary. The diet proper for Persons troubled with the Hypochondriac and Hysterical disease, with Flatulencies and Indigestions is most undoubtedly Animal Food. We should always attend to the State of a person's Stomach before we attempt to prescribe any diet for them. The most certain Sign of a weak Stomach is when the Eructations or what are belched up will flame in the Fire like Oil. The following Case which I am now treating will tend to shew the Necessity of prescribing a proper diet. A Person who had been long subject to Flatulencies, Indigestions and other disorders of the Stomach and Bowels, after taking Bitters, Chalybeates, and Mineral Waters to no purpose, after leaving off Medicines and being confined to Flesh Broths and light Meals easy of digestion, eating no Vegetables but Bread is now relieved of those Complaints, digests the Food well and I am certain will by continuing this Method be restored to a proper State of Health. Nothing is more pernicious than Butter or greasy Substances of any kind in Weakness of the Stomach. They always increase the Weakness. On this account, Pork, Goose, Duck and every other fat Substance must be absolutely forbidden in these Cases. Altho' an Animal diet is in those Cases to be preferred, yet it should always be accompanied as much as possible with a Vegetable Diet, for there are Instances of Scurvy being produced in a high degree from living too much on Animal Food. The most proper Substances to be taken with Animal Food are Bread and our Common Potatoe. A Gentleman of my Acquaintance has so weak a Stomach that he cannot eat any Vegetables, not even Bread without feeling disagreeable Consequences, but he can eat as much potatoe as he pleases without being at all affected. I mention this to shew you that the Potatoe deservedly makes the greatest Part of the Vegetables we use. I cannot agree with what Dr. Cadogan says of the bad Effects of Bread in those disorders. He macerated Bread in Water in 96° of Heat and found it became acid, from which he inferred that the same thing happens in the Body. But this is also the Case with all kinds of flesh Broths, which will turn sour before they become putrid. And from the latest and best Observations it appears probable that all kinds of Flesh become acid before they putrefy. We must allow that the Bread which Dr. Cadogan used had this effect as there is no reason to doubt his Veracity and Candour. It has been too much the Case to infer from what happens

happens without the Body. These Experiments in general either prove too much or nothing at all.

Bread or other Aliment being taken into the Mouth is there chewed & masticated and is blended with the Saliva. In the Stomach it meets with the Gastric Liquor and in the Intestines with the Bile and pancreatic Juice. All these Fluids will prevent or check the vinous or acetous Fermentation. Digestion is much better performed when the Aliment is well blended with the Saliva. You can scarcely conceive what a difference this Circumstance will make. For this Reason persons of a weak Stomach should employ Biscuit or Bread hard baked. I have known persons so much troubled with Acidity that common Bakers Bread would not stay on their Stomach and yet they felt no Inconvenience from using Biscuit. Children who are fed upon pap made of Flour and Water or Flour and Milk are oftentimes troubled with Acidity & Diarrhoeas, but upon using Biscuit instead of Flour they are relieved of their Complaints. Bread toasted very hard will often stay upon the Stomach when no other Aliment will be retained. In Cases of this Nature it is not sufficient to attend to diet. It is also necessary to regulate the drink of our patient. In all Cases where a Relaxation of the Stomach takes place all fermenting and even fermented Liquors should be entirely banished. I have known even Madeira Wine turn sour upon the Stomach. The best drink is Toast and Water; a little Wine or Spirits may occasionally be added. When these Substances are taken moderately, they stimulate and strengthen the Stomach and tend to assist digestion. This was the only drink and Remedy employed by Dr. Fothergill in Cases of Indigestion. Various Remedies have been recommended to recover the Tone of the Stomach and to assist digestion—

Dr. Cullen recommends a Solution of Common Salt in four times its Weight of Spring Water and a little Spirit of Sea Salt added to acidulate it. This he advises to be used as a common drink and speaks highly in Favour of it. I cannot say how justly he recommends this as I have never had an Opportunity of trying it. I have always found the common Elixir of Vitriol to answer every purpose as a Medicine. I advise 20 or 30 drops of this to be taken two or three times a day in a Tumbler of Water—All the Mineral Acids create an Appetite and prevent Fermentation of every kind and perhaps either of them will answer equally well. I must

37

I must not however omit mentioning some Observations made by Dr. Smith a Gentleman of my Acquaintance at Edinburgh, who is now an eminent practitioner at Manchester in England. He found that a Solution of Common Salt was the most considerable Stimulus to the Animal Fibre. He made his Experiments upon Frogs and found that a Solution of Common Salt would make their Muscles contract when they were insensible to every other Stimulus. From hence it seems probable that the Muriatic Acid joined with the Solution of Common Salt as recommended by Dr. Cullen, would be equally effectual and in some Cases perhaps preferable to the other Acids. There are few disorders more common than those which arise from a Relaxation of the Stomach producing Indigestions &c. I would recommend to you to read Dr. Cullen on this Head in his Chapter of Dyspepsias.

We have considered the Diseases in which a Vegetable Diet is improper. We are next to mention the Cases in which it is serviceable.

Wherever there is a disposition to putrescency as in the Scurvy, Dysentery, putrid Fevers &c and in all Cases of Inflammatory diathesis a Vegetable diet is indicated. All persons that are troubled with Spittings of Blood, Inflammatory Fevers, pleurisies &c should confine themselves to a Vegetable diet. It is remarkable that more people die in England of Consumptions, than in almost any place. This cannot be owing to Climate as the Scotch and Irish who inhabit nearly the same Climate are not so subject to this disease. It seems to be owing principally to the Inhabitants living so much on Animal Food. A Vegetable diet is the best and perhaps the only Remedy in all Consumptive Habits. I have relieved several persons who had all the symptoms of approaching Consumption, by confining them entirely to vegetable Food, allowing no Animal Substance but Milk. This is in most Cases allowable. A Vegetable diet is to be recommended to all persons labouring under Rheumatic Complaints. Putrid Disorders with Petechiae were very common in Sydenham's time as appears from his Works. These are now scarcely ever known in London and it appears that a much greater proportion of Vegetables is consumed in that City than in Sydenham's Time. The Dysentery has been supposed to arise from a Vegetable diet particularly from the use of ripe Fruit. This notion is entirely false and groundless and has been very destructive, as it prevented the use of these Fruits which are most proper for the Cure of this disorder. Dr. Fipst in his Advice to the people, a Book in which you will find more Candour and humanity and Good Sense than in almost any other

other of equal size that was ever published) has given us several Instances of ripe Fruits producing a Cure in this Disorder. Amongst others he has one of eleven persons in the same Family being seized with the dysentery, nine of which recovered by the free use of Fruit; two, the old Grandmother and a favourite Child, fell a sacrifice to this unreasonable prejudice of not eating Fruit. He also tells us of a Swiss regiment in Garrison in the South of France who were almost entirely destroyed by the Dysentery. The Officers purchased the whole Crop of several Acres of Vineyard; there they carried the sick Soldiers and gathered the Grapes for such as could not bear being carried into the Vineyard; those who were well eating nothing else. after this not one died nor were any more attacked with the Dysentery. Not ripe Grapes alone are of service in this disorder all ripe Fruits will answer equally well. We have a Fruit in this Country which seems particularly adapted to this disease. I mean the Water Melon. Dr. Aspelquist in his Travels to the East tells us that ⁱⁿ Egypt, after the Overflowing of the Nile and the Waters again subside, from the putrefying of the Soil which that River brings with it, Dysenteries, putrid Fevers and other malignant Disorders are very common. The Inhabitants make use of the Water Melon in these diseases and drink the Juice of it. This in general performs the Cure and very few die of disorders which in other parts where a different Method of Treatment is pursued, prove fatal. The Water Melon acts by increasing the excretions by Stool and Urine and by supplying a cooling Antiseptic Stimulus to the system, and thus does more service than all the Cordials of the Shops which are usually given in such Cases. Dr. Hillary explodes the Use of Cordials and Stimulants in the Yellow Fever and trusts principally to diluent acidulated drinks and a proper Vegetable Diet. A Gentleman who had been Physician to a Naval Hospital at Halifax informed me that upon a return of a Vessel from a long Cruise the whole Crew were down with the dysentery. A great Number of them died, altho' the Bark & other Remedies usual in this disorder were employed, untill one of the inferior Officers to all appearances just dying begged to be indulged with a draught of punch: His request was granted. he took off a whole Bowl at a draught. This threw him into a gentle sweat and by repeating his draughts he in a short time recovered. From this the hint was taken and by the proper Use of acidulated drinks the whole Crew recovered.

The Dysentery is a disorder which often times appears in long Encampments, the German Soldiers when seized with it trusts to his Mixture of Vinegar and Cream which he will swallow in as large Quantities as he can procure and is seldom disappointed in his hopes of a Cure.

The Dysentery if not occasioned by, is always accompanied with a depraved State of the Bile. Whatever will evacuate the degenerated Fluids and at the same time supply a mild Antifetrescent Nourishment to the System must certainly be of service in this Case. A few doses of Bark are not adequate to the disorder and besides the Stomach cannot bear it, but rejects it by vomiting. Ripe Fruits do not only agree with the Stomach in this disorder, but are also so eagerly desired by the patient. A Chronic Dysentery is frequently cured by the use of ripe Fruits, after it has a long time baffled all the Efforts of Medicine. The best Remedies therefore for the depraved State which takes place in dysentery, are recent, acescent Vegetables particularly ripe Fruits. These produce an Alteration in the State of the Bile and at the same time by stimulating the Intestines cause an Evacuation of the Morbid Matter. The Dysentery is never occasioned by Fruits. They will frequently produce Colic, Diarrhoea and Cholera Morbus. A Colic is often occasioned by Fruit. These fermenting in the Stomach evolve a large portion of fixed Air which distends the Intestines and produces grievous pains and spasmodic Contractions and if speedy Relief is not given will occasion Faintings, Convulsions & Death, as happened to a person, who was taken in the middle of the Night after eating a large Quantity of Cherries, with a violent pain in the Bowels and an Inclination to vomit. The Abdomen was distended to an enormous Size and tho' every possible means was tried to give Relief the person expired next Evening. The Medicine which I have found to afford the most speedy Relief in these Cases is the Volatile Salt of Tart. horiv or Ammoniac. One drachm of this dissolved in four or six Ounces of Water with a few drops of any Carminative Oil and if the pain is very violent Lig. Laudan. A Table Spoonful of this Mixture taken every hour or two according to Circumstances will generally afford Relief. Or it may be formed into Boluses with Conserve of Roses: five or six grains may be given in each Bolus with a quarter, half or even a whole grain of powdered Opium. Notwithstanding all our Efforts the pain will sometimes continue and the patient expire - I was called upon to visit a person

son who about six hours before I saw him had been seized with a pain in his Stomach from drinking a Cup of Buttermilk which had stood over Night and had become sour. I had recourse to Opiates, the Volatile Salt, &c. mentations to the Abdomen and had the patient put two or three times in the warm Bath. Notwithstanding all those Applications a constant Vomiting remained in the Stomach and the patient died within twelve hours from the time I saw him. From the small frequent pulse in this Case & the Coldness of the Extremities I am morally certain that a Mortification of the Stomach took place which killed the patient.

The vulgar practice of eating Cheese after Fruits is a very good one, as Cheese, especially when old is of an Animal Nature and will tend to obviate the bad Effects of the Fruit.

A Diarrhoea is often owing to a too free Use of Fruit. It arises from the acrescent liquor of the Fruit, mixing with the Bile and stimulating the Intestines. If attended with no other Complaint, it scarce deserves the Name of a disease, but ought rather to be considered as a healthy Evacuation. If it is troublesome, a dose of Rhubarb will generally remove it.

A Cholera Morbus is often brought on by the use of Fruit. The acid liquor they produce stimulating the Stomach and Intestines occasions Evacuations both by Vomiting and Stool. Warm Water, Warm Teas, or Chicken Broth drank plentifully will generally give Relief by diluting and evacuating the offending Cause. If Vomiting should continue merely from Irritability of the Stomach, a large dose of Laudanum should be given and repeated untill the Vomiting ceases. If the Patient is plethoric we should advise Bleeding, least a Rupture of some Blood Vessel in the Head Lungs or Stomach should be occasioned by the violent Straining in Vomiting. You are to observe as long as the Vomiting is without Spasms there is no danger and we need not be solicitous about it. But as soon as ever Spasms occur either in the Stomach or other parts we must have immediate Recourse to Laudanum which is to be given in such doses and repeated at such Intervals as will effectually put a Stop to the Complaint.

Vegetable Aliment is the best preservative against the Scurvy and when this disorder has actually taken place it is the only thing to be relied

relied upon for a cure.

Many disorders seemingly of a quite different Nature have gone under the name of Scurvy. Thus any eruption on the Skin for which the physician is at a loss for a Name is said to be owing to a scorbutic habit of Body. This oftentimes satisfies both patient and physician and Medicines are given for a disease which perhaps exists only in their Imagination -

By the Scurvy I mean what is more properly called the Sea Scurvy. This disorder generally begins with a Lethargy and Heaviness of the Body which is considerably increased in the Morning, unless the person has perspired freely in the Night; a swelling in the Back and Knees; an Aversion to Motion and a Weariness upon moving never so little. The Respiration is labourious with a palpitation of the Heart. The Countenance loses its healthy Colour & becomes bloated and yellow and after sometime acquires a greenish hue. The Corners of the Eyes appear whitish and even yellow. Sadness and Sorrow take place over the whole Countenance. The Gums itch, burn and smart; The Teeth are frequently elevated in their Sockets; Blood flows from the Gums upon being touched never so slightly. There are also partial Tumours formed in the Gums which are to be cured by opening them. The Gums opposite the Jaw Teeth are most liable to be affected, and the outer and inner Gums are often affected at the same time. The Teeth lose their Ivory Whiteness: they become yellow and as the disorder advances become black. They become loose and may very readily be taken out. If there is a decayed Tooth in the Head, there is a pain in the Jaw in that place increasing in the Night, but not otherwise. The Breath is very offensive: the Saliva is thin and acrid. There are great pains in the Joints especially in the Knees and ancles. There is oftentimes an acute pain running from the Ankle along the Tibia to the Knee: sometime it extends along the Thigh to the Groin. A crackling Noise is heard in the Knee upon moving. The pains are greater in the Evening but upon the persons getting into Bed and perspiring freely. They are considerably relieved and indeed in sweating the life of scorbutic persons may be said to consist. In the beginning there are sometimes pains in the Thorax which are not fixed but seem to fly from one part to another, but chiefly across the Breast. They are attended with a Difficulty of Breathing with a sense of Weight in the Breast. As the disorder advances this weight and Oppression are increased and shew that the Vital Powers are declining

declining and that death will soon close the scene. There is no pain felt from preping the Thorax externally. The Muscles all over the Body are very much relaxed and very meagre: and they seem as it were separated from the Bones. The Skin appears from the beginning like what is called Goose Flesh and is hot and dry. In hairy persons at the Roots of the Hairs on the legs and thighs appear pustules which are red, yellow, purple and sublivid. In smooth skinned persons there appear spots like Flea bites all over the skin which are not elevated above the skin. These appear red livid and purple. Scars from Wounds and Ulcers change their Colour, they first appear darker than the rest of the skin and as the disease advances they become livid. There appear also over the skin spots like Ecchymoses from a Blow which appear yellow, purple and black and sometimes these Colours are all mixed together like the Colour of the Rainbow.

All these Appearances are trifling in comparison with the Tumours that are formed on the Limbs. These are at times preceded by great pain, at other times there is no pain at all. These are produced in the following manner. On the surface of the skin appears a small spot which is first perceivable by being of a different colour from the rest of the skin, tending to a darkish, brown yellow and a little elevated. This increases from day to day running along the limb. It is at first moveable but as the disorder advances it becomes immoveable. It has various Colours, purple, livid, lead, black and all together. As the disorder advances it penetrates into the Muscles and appears to adhere to the Bone it communicates an uneasy Sensation of heat to the touch. This Sensation of Heat is very different from that which occurs in Inflammatory Tumours. Putrid Tumours always communicate a pungent Heat to the Finger. The Tendons and Muscles are affected: they are contracted very much and the patient is unable to extend his leg; so that he is obliged to walk with a bent Knee on tip toe. It is remarkable that both legs are never affected in this Manner at the same time. They seldom affect any part but the Legs. These Tumours neither inflame nor suppurate and never excoriate. They remain untill the Patient dies or untill he is recovered of the disorder. There is also a swelling of the Feet and legs as in the Dropsy which it resembles in this that the Arteries

cles swell towards Evening. As the disease advances the whole leg is affected. It may readily be distinguished from the dropsy by the Skin being discoloured it appearing Yellow and black. It is likewise more difficult to make an Indentation in this swelling than in the dropsy, but when it is made it is much longer filling up. There are no Ulcers formed unless the Skin has been previously broken and then a very bad Ulcer is produced. These Ulcers may readily be distinguished from common Ones, by their generating no pus and upon opening them a black concreted Blood appears in the Bottom of them. They sometimes form a fungous Flesh very quickly which tho' taken away away by the Knife or Medicines returns as Suddenly. These Ulcers are commonly situated on the Spine of the Tibia. They are much worse when below the Ankle. They seldom affect the Bone tho' they torment the patient for a long time. We have now enumerated the symptoms which appear without the Body, we are in the next place to enumerate those which occur in the Body.

Fever seldom or never attack persons in the Scurvy. This is a very happy Circumstance, for were a Fever to occur it must be of the putrid kind which would soon determine the Fate of the patient — They sleep pretty well and are never troubled with Head Ache which is so common in other disorders. The Tongue retains its natural Appearance except that it is sometimes somewhat yellow. They have no thirst, have a tolerable good appetite. They enjoy the full use of their Senses untill the hour of their death. In the advanced Stage of this disorder the pulse is very weak and small and beats from 70 to 90 Strokes in a minute, seldom or never more. It is sometimes the seldom intermittent and unequal. The patient is generally constive from the beginning and even for sometime before the disorder comes on, but never griped. In the advanced Stage a Diarrhoea and dysentery sometimes occur. A diarrhoea often proves salutary. Hemorrhages are very frequent from the Nose and Anus. There is no difficulty in making Urine which is in a small Quantity and appears very high coloured and deposits a yellowish brown Sediment. The Blood even at the Beginning of the disease appears thin and black. The Serum is yellow, the Crapamentum is dissolved; The upper Surface is red and shining below and in the middle black. They have grievous Palpitations of the Heart and appear very much fatigued upon the least Motion, tho' they generally appear well when lying in bed and speak with a strong voice.

voices. They cannot bear even the admission of fresh air tho' it is of such advantage; and oftentimes they expire suddenly exposed to it. Of this I have heard a remarkable Instance of a Sailor who was lying in his hammock talking merrily to his Companions; upon the port Holes being opened to admit fresh air he expired as suddenly as if he had been struck with lightning. Fear and Sadness soon depress them; joy and hope as soon elevate them. — Breathing at last becomes very difficult, they are subject to frequent Faintings: they have no Cough — They at last expire without a sigh or a Groan and can scarcely be said to know what it is to die.

As to the proximate Cause of the Scurvy it appears to be a retention and accumulation of putrescent Matters that have been gradually formed in the System and while the Functions are duly performed are carried off by stool, Urine and the insensible perspiration. The Heart may be considered as a *perpetuum mobile*. It receives the Blood from the Veins which it expels into the Arteries. In this course there must necessarily be a great loss of the vital Fluid. Part is carried off by the Urine which contains many acrid corruptible particles: part by Stool; but the most considerable part is evacuated by perspiration which is insensible except in the form of Sweat or in Cold weather. This last Evacuation is constant and uninterrupted while the Body is in an healthy state. Both the Urine and perspiration are acrid, putrescent and of an offensive smell. This is evident in persons who do not keep their feet clean in summer. There is also a great quantity exhaled by the Lungs. All the Excretions even in health are of an offensive & putrid Odour and Quality. This is more remarkable in the Sick and particularly in the Scorbutic. The Breath is offensive and many other Symptoms we have enumerated above. Tho' these may be said to be rather the Effect than the Cause of the disease, yet the Breath is offensive and the Gums affected in the very beginning of Scurvy. This putrescency is different from that producing putrid Fevers &c. Putrid Fevers are attended with Pain in the Head intense Thirst, frequency of pulse and are generally contagious; whereas the Scurvy is entirely without these Symptoms and is never contagious. I say putrid Fevers are generally contagious; because I shall on another occasion demonstrate that they are not always so. The Causes of putrid disorders appear to be different — thus some Species will produce a plague, some the dysentery, some the putrid sore Throat

Throat, and others the Yellow Fever. From this we may be allowed to assert that the putrid Matter causing Scurvy is very different from that of other disorders. All the Humours of our Body have a constant Tendency to putrefaction. The constant supply of Aliment tends to correct this as Providence has given the greater part of our Aliment the power of resisting putrefaction. The Stomach is furnished with an Acid which also tends to resist it. There are various Contrivances to guard against putridity; thus the putrescent Matter in Health is evacuated by Stool, Urine and perspiration before they can produce any bad Effects. But if our Food is constantly of an Animal Nature, the putridity of the Blood is increased, more especially when the Evacuations from the general Emmunatories of the Body are diminished or obstructed. In the Scurvy, the patient is costive, the Urine is diminished, the perspiration is checked and it appears also that the Lungs are affected, hence the Noxious part of our Humours are retained and accumulated. In fact we constantly carry the Cause of Scurvy about us. Hence only Cold and Rest and living on Animal Food or Food of a putrescent Nature are wanting to produce it. When these Circumstances are present Scurvy immediately takes place. In Cold Climates where Vegetables are used the Scurvy is prevented, where these are wanting it is soon produced. Scurvy takes place seldom in warm than in Cold Climates because in the former the Poramina in the Skin are kept open and the putrescent Matter carried out. In Northern Climates the Scurvy is produced tho' the Inhabitants live in the same Manner that they do in the Southern. The Inhabitants of the North are afflicted with it only in the Winter.

Two Fleets sailing from Europe at the same time, having the same provisions, one stationed on the Coast of North America, the other at the West Indies, the Men in the former will be afflicted with the Scurvy, the latter perfectly free from it. In the West Indies the sailors as it is said living upon the salt Provisions or common Provisions of the Ship perspire Salt in their Sweat, in such Quantities as to exceed the Bounds of Credibility, so as to be collected in the Instep, when tasted it was salt and acrid and even destroyed and wore out the Leather of the Shoes. If so considerable a Quantity is collected in so small part, how great must be the discharge over the whole Body, which in those warm Climates we may almost say dissolves in Sweat. How different must be
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the Case in Northern Climates where they do not sweat at all. From all this we conclude that the proximate Cause of Scurvy is no other than a Retention and Accumulation of putrescent Matter in the System.

With regard to the Occasional and predisposing Causes of the Scurvy we may in general observe that whatever tends to or actually generates putrescency in the System may prove the exciting Cause of the Scurvy. Thus the exciting Causes may be various. The principal are Cold air & such Food as is of a putrescent Nature or is difficult of digestion or affords little Nourishment. Unless some or other of these take place a person in Health will have little to fear. Moisture has been accused of predisposing to the Scurvy, but without Cold it will never produce this disease tho' it may produce the putrid Fever and dysentery. That the Scurvy is not occasioned by Moisture without Cold appears evident from many Considerations. The Inhabitants of Venice, who may be said to live in Water, scarcely know the Scurvy even by Name. The Inhabitants of the Cold Northern Climates, Russia, Sweden, Lapland and Norway, where in the Winter all the Lakes and Rivers are frozen up in such a Manner that no Exhalations can arise, are frequently afflicted with the Scurvy. This disorder generally attacks them in the Winter and in the Spring they are relieved from it. It appears from the Journal of the seven Sailors who died of the Scurvy in Greenland, which was found after their death, that during the Eight Months they were there they had but 10 Cloudy & foggy days. It likewise appears from very accurate Journals kept both by sea and land that the Scurvy seldom or never makes its appearance while the Thermometer is above 70° altho' the Sailors live on Salt provisions, but it generally appears when the Thermometer falls below 60°. It is not Moisture but Cold that produces the disease.

The Aliment which contributes most to this disease is animal Food especially such as is salted. There have been many disputes amongst Physicians whether Salt or the Meat principally conduces to this disease. Some have accused the Salt alone, while others declare the salt to be perfectly innocent and ascribe the bad Effects solely to the animal Nature of the Aliment. Those who accuse Salt, in support of their Opinion tell you of the Laplanders who live almost wholly on Animal Food

Food preserved by the Cold of their Climate, who never use Salt and are seldom or never afflicted with this disease. They also assert that the first Winter Quebec was taken the English Soldiers lived chiefly on salt meat and great Numbers of them died of the Scurvy. The next Winter they lived upon Meat preserved by the Cold without any Salt and continued entirely free from this disease. Neither of these Arguments however are conclusive. The Laplanders use besides the Animal Food, the Milk of the Reindeer which they take sour and even place it before the fire and boory it in Skins to render it acid. By this they will sufficiently obviate the putrid tendency of the Aliment. — With regard to the other Argument waving the Consideration that the first Winter on account of the War, the Soldiers were upon very heavy duty, exposed to many hardships, particularly to the Cold, by which the perspiration would be checked and a Foundation laid for the Scurvy; and that the next Winter all was peaceable & quiet and the Soldier might consult his ease and health; waving this Consideration I say, we may observe that after the disease had produced such fatal Consequences every possible Means would be employed to prevent its returning again. There is not a single Instance of Salt alone producing the disease. We must also allow that fresh Meat is not so apt to produce this disease as that which is salted. That Fresh Meat of itself is capable of producing the Scurvy I lately met with two remarkable Instances, the one in a Boy of 8 Years old, the other in a Young Gentleman, who were both highly scorbutic. — Neither of them had eaten Salt Meat, but both were remarkable for being very fond of Flesh and not eating Vegetables. Salt and Flesh when combined may perhaps produce Effects which neither would produce singly. This appears probable from what happens with some substances used in Medicine, particularly saline ones. Salt renders Flesh harder and more difficult of digestion by which means it is retained longer in the system and becomes more putrid. Salt Fish, Salt Butter & Cheese and indeed Animal Substances of all kinds tend to excite Scurvy. Salt Butter is generally rancid and putrescent. New Cheese is one of the most insoluble Substances and most difficult of digestion. Old Cheese is generally putrescent if not already putrid.

The best preservatives against the Scurvy are a vegetable diet and Exercise

Exercise. Vegetable diet prevents this disorder by obviating the putrid tendency of our fluids. Exercise prevents it by keeping up the perspiration by which the degenerated parts of our fluids are evacuated and not suffered to accumulate. When a person is attacked with the Scurvy Exercise will be of no service, and indeed the solids are so much relaxed that much Exercise cannot be used. The only thing the patient will have to rely upon for a Cure is a Vegetable diet and Vegetable Acids, as Lemon Juice, Lime Juice &c which always prove effectual unless a person is in the last stage of the disorder. The Mineral Acids will be of no service and we may in general observe that no substances prove useful in the disorder but those that are liable to undergo the acetous Fermentation and are convertible in *succum et sanguinem*. The most powerful Antiseptic peruvian Bark itself will be of no service without a vegetable diet and when this can be procured the Use of all Medicines will be superfluous. Unless a person begins to mend from the first day he enters upon the Use of a vegetable diet there are no hopes of a recovery, and it is a general Observation that if a person in the Scurvy lives two days after being brought on shore and using vegetables, he will get well. When a person is brought so low with this disorder that his Stomach cannot retain and digest Vegetables there are no hopes of his recovery. Of the Efficacy of a Vegetable diet alone in curing the Scurvy there was sometime ago an Instance in the Pennsylvania Hospital: A Person was admitted for this disorder who tho' not in the last stage was very much affected with it. He was put upon a Vegetable diet from his first Admission. He recovered in a short time without the Use of any other Medicine than the Elixir Vitriol. a few drops of which were ordered him two or three times a day in a little Water. This was given more to satisfy the mind of the patient, than from any Expectations I had of its usefulness. The two Cases mentioned above were cured by Abstinence from animal Food and living upon Vegetables without the help of any Medicine. The Tumours were discurped by Bathing them with Vinegar and Lime Juice. — Of Vegetables Cereals are particularly adapted to this disease. They may be taken in such Quantities as to afford Nourishment. By their Stimulus they will increase the secretions and Excretions by Stool & Urine

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Urine and Sweat and thus carry off the degenerated Fluids while at the same time they will correct the putrescency of the remaining part by their acrescency. For drink Lemonade and weak punch will prove most grateful to the Stomach, will obviate the putrid Tendency and increase the Evacuations by Stool &c. The different Symptoms which occur are to be treated in the same manner as if no Scurvy was present. The Tumors are best dissolved by bathing them with Lime Juice and Vinegar.

Not only the recent Vegetables, but also those that are preserved are excellent preservatives against the Scurvy. Of this we have had a remarkable Instance not long ago. We may observe that Physicians have in general conduced less to the Improvement of our Knowledge of the Nature & Cure of this disorder, than Seamen such as Lord Anson, Capt Cook &c. Capt Cook in his second Voyage round the World carried with him great quantities of Cabbage preserved by salt, known by the German Name of Sauer Kraut. During his whole Voyage which was of 5 Years, he lost but 5 Men, two of which died of Consumptions, two by Accidents & one of a Fever. Not the least Symptom of Scurvy appeared among any of his Men. This remarkable healthiness he attributes entirely to the Sauer Kraut and also to the free Use of Vinegar. This Sauer Kraut is the Provision of the people in the Northern parts of Europe: and is employed during the Winter by all those who inhabit the Countries to the Northward of Great Britain. Before it is boiled all the salt is carefully washed out and it is rendered slightly acid.

I have been thus full upon the disease not merely to make you acquainted with its history and Nature, for that you might find in every Book, but chiefly to shew you the Effects of diet in Medicine. It is however of the utmost Importance for a Physician to be well acquainted with this disorder. This disorder serves to confirm the Opinion that our Solids may be primarily Affected. How gradual is it in its approach, how certain in its Effects, how fatal in its Consequences.

When the Solids are affected we observe that the attack is sudden. In this Case the Cure is to be performed by Medicines. In the former Case the disorder is not to be removed untill an entire Change is produced in the
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the Fluids by diet. It is said that no less than 86,000 Men died of the Scurvy in the King of Great Britains Service in the War before the War. I have taken no Notice of the different Opinions concerning the proximate Cause of this disorder, but have confined myself solely to that which appears most rational and at the same time most readily accounts for the Method of Cure.

We are in the next place to speak of Drinks.

The general use of Drink is to supply Fluid to the System, to promote the Solution and to expedite the Evacuation of the Aliment out of the Stomach. Drink taken in moderate quantities facilitates digestion, dilutes the Chyle, promotes absorption and thus assists Nutrition. When taken in large quantities it hurries the Food out of the Stomach before it is sufficiently digested, accelerates its motion thro' the Intestines by which means absorption is prevented and hence it hinders Nutrition.

Persons who fatten fowls for the Market allow them no drink by which they are fattened in a much shorter time than they otherwise would be all their food being converted into Chyle.

Drink keeps fluid the Lymph by diluting it and hence prevents Obstructions and Stagnations in the Glands and those disorders which arise from these Causes. The same thing happens in the sanguiferous system: hence the whole is kept in a proper degree of Fluidity; Secretion is carried on in a regular Manner; the insensible perspiration is kept up, thus the degenerated parts of our Fluids are evacuated, before they can be accumulated so as to produce disease. Captain Cook thinks that the Reason why the Scurvy did not appear amongst his Men was as much from allowing them as much Water as they chose to drink as from any other Cause: for during the whole Voyage the Men were not reduced to an allowance of Water.

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These Effects are all produced by simple Water and we may in general observe that all Substances are proper for drink in proportion to the Water they contain. Various Substances have been added to render it more palatable or for particular purposes, as to render it more nourishing or more healthy. Thus Malt is added to Ale and Beer to make them nourishing. Acids are added to Water to make it quench Thirst more effectually. Here let us enquire into the Causes of Thirst. These may in general be referred to the four following Heads:

- 1st Thirst is occasioned by a defect of Fluids in the System, by which the Secretion of the Glands in the Mouth and Fauces is diminished and likewise by the Air drying the Mouth in its passage to and from the Lungs.
- 2nd It is occasioned by solid viscid Food if it be taken in large Quantities.
- 3rd By alkaliescent Aliment especially if it has acquired any thing of a putrefactive taint.
- 4th Thirst is occasioned by an increased Action of the Heart and Arteries more particularly when the heat is so increased as to constitute Fever. In this last Case the Thirst is out of all proportion to the heat of the Body and appears to be owing to Constriction of the Fauces and is often intollerable. That the Thirst in this Case arises from Constriction is evident from its appearing in the Cold fit of an Intermittent where there is no Heat. It is only to be relieved by removing the Constriction.

I am here led to consider the Use of drinks in Fevers. Physicians have had very different Opinions upon this head. Some enjoin their Patients a rigid abstinence from drink, while others indulge them to the utmost of their Wishes. For my own part I cannot believe that any Inconvenience can arise from allowing our patients to drink plentifully provided he does not take large draughts at once. Large draughts overload the Stomach, increase the Oppression, augment the Fever and thus prove hurtful. Moderate draughts frequently repeated are of considerable Advantage. They increase the excretions by Stool Urine and Sweat and supply Blood to the System and tend to keep.

keep up a gentle perspiration which has a great tendency to moderate the Fever. the heat is never so intense when there is a gentle perspiration. When Thirst arises from a Constriction of the Fauces, which we know to be the Case from the Clamminess of the Fauces and from the patient complaining of intolerable thirst whilst he is drinking, it is only to be relieved by taking off the Constriction. This is to be done by holding a Tamarind or any acid in the Mouth, which by stimulating the ducts will occasion a more copious secretion and excretion of Fluids into the Mouth. In this Case the Cause appears to be chiefly local and is to be removed by local applications.

We are in the next place to consider what drinks are best in particular Fevers.

In all inflammatory Fevers in general acidulated drinks are the most proper. Whether this is the Case also in Cases of topical Inflammations as in pleurisies and peripneumonies is a matter of doubt. These disorders are generally attended with Cough and it is well known that Acids will increase a Cough. For this Reason I have been deterred from using them in these diseases altho' they are in other respects very proper. I have made the Experiment and have always been obliged to desist on account of the Cough. If in any Cases they can be exhibited without this Effect they will certainly prove useful. I generally in these Cases recommend a Pisan of Barley Water in which some Raisins, Prunes or Liquorice Root have been boiled. This affords an agreeable cooling drink and also tends to keep the Body open which is one of the principal curative Indications.

Acidulated Drinks are highly useful in putrid Fevers, Dysenteries, bilious Vomiting and wherever there is a disposition to putrefaction. In these Cases Rennet Whey in which some Cremor Tartaris has been dissolved $\mathfrak{z}\text{ij}$ or $\mathfrak{z}\text{ij}$ to a Quart affords a very agreeable and wholesome drink. This I have found to be of great service and have oftentimes had occasion to use no other Remedy in the Measles. It will prevent the peripneumonic Symptoms the diarrhoea and dysentery which are so often the Consequences of this disorder. It has also this advantage, that it has the appearance of Urine with the patient and Bystanders and a Physician should always endeavour

your to rise above an Old Woman in his prescriptions. Acidulated drinks are not so proper in Nervous Fevers. In these there is generally a great Oppression at Stomach arising from debility. Acids tend to increase this Oppression and likewise to produce Flatulencies. On account of this debility we cannot administer the Neutral Mixtures so freely as in other disorders and Saline Substances given with a View of opening the Bowels often occasion Flatulencies and Oppression. In these disorders something moderately stimulating and comfortable to the Nerves is required. Infusions of Sage and Balm Wine Whey and in the advanced Stage Mustard Whey is attended with happy Effects.

Acidulated drinks are very improper for those who are recovering from Intermittent Fevers. During the Cold Fit our patient should drink nothing at all or at least as little as possible. During the hot fit and Intermittions. Infusions of Chamomile or Centaury are undoubtedly the most proper. But our patient oftentimes requires something more grateful, and during the hot Fit we may indulge him with acidulated drinks but at no other time—Every thing that debilitates the Stomach will in Convalescents from Intermittents bring on a Return of the Paroxysm. It has been a question much agitated amongst Physicians whether warm or Cold drink is most proper in Fevers. Some are for rejecting Cold Drinks altogether whilst others highly extoll them. In all topical Inflammations and in Inflammatory Fevers in general Cold Drinks are improper and should be altogether abstained from. But in all Nervous, putrid and remittent Fevers they are much more proper than warm drinks and may be used with considerable Advantages. This is evident from the practice of the Spanish and Italian Physicians who give their Patients in Remittent Fevers Cold Water, and in Summer cool it with Ice and find considerable Advantages from this practice. In general we may observe that in all Inflammatory Fevers where the Action of the Heart and arteries is too great Cold Drinks are improper; in all Fevers where the Action of the Heart and arteries is too weak and the Vis Vitæ is sunk they are highly useful. In low Nervous Fevers nothing is more grateful to the Patient than a draught of Cold Water, but of this Gratification they are frequently deprived thro' the prejudice & ignorance of the Physician. Cold Drink is in these Cases much preferable to warm which relaxes the Stomach and System already too
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much debilitated.

Drink should be frequently administered in a Nervous Fever often more than they ask for it, for they generally have a delirium and a perfect insensibility to their own concerns.

It has been a common Custom in this Country the not so much now as formerly to drink large Quantities of punch in Warm Weather. This is a very pernicious practice. The Acid weakens the Tone of the Stomach, produces Flatulencies and lays the Foundation for the Gout in the Extremities in the early period of life and in the Stomach and head in a more advanced Age. The Spirit contributes by slow but as sure steps to the same end. A remarkable Instance of the Effects of Intemperance we have in the West Indians—The Men who in general are very intemperate, seldom arrive at any thing like old Age, but are generally carried off in the early period of life. The Women who lead a very temperate life are generally very healthy and oftentimes live to a very great Age.

We are next to speak of the use of drink in the Dropsy. This is in general accompanied with very great Thirst from a Constriction of the Fauces, which is not to be relieved by drink and as there is too great a quantity of Water in the System with a diminution of all the secretions, drink seems to be highly improper. I knew a Surgeon of Eminence in London, who was cured of a dropsy by a rigid abstinence from all kind of drink. His Abdomen was so distended with Water that it actually burst. The Cicatrix of which he bears to this day. He kept a Plumb or a Samaritan constantly in his Mouth and sometimes moistened them with Wine in order to allay the almost intollerable Thirst, but no Fluid whatever passed his Tongue. It is true, some persons have been relieved of a dropsy by drinking large quantities of Water and bringing on a Vomiting and purging and copious discharge of Urine. This is not owing directly to the Water, but it proves the Cause of the Cure immediately by its Stimulus. It is however a very precarious Remedy and if not attended with those Effects

Effects must certainly prove destructive.

We are in the next place to consider Condiments.

Condiments are all such Substances as are taken in with our Food to correct any bad tendency it may have or to render it more palatable & agreeable to the Stomach.

The first to be considered are the Aromatics. These are certain acrid Substances which we take in with our Food to render it more palatable. In the warmer Climates are Cinnamon, Cloves, Nutmegs, Mace, Pimento &c. Analogous to these in the Northern Climates are the Seeds of Anise, Caraway, Fennel, Coriander &c and all the sweet Herbs. They stimulate the Stomach, promote the peristaltic Motion, are antispasmodic taking off Spasm in the Alimentary Canal & antiseptic. From these Qualities they appear to be very proper to accompany Vegetable Food and hence the Use of them should be chiefly confined to the warmer Climates of which they are the produce, the Inhabitants of which live mostly on Vegetables as Rice, Milk, Date &c. In the Northern Climates where the Inhabitants live chiefly on Animal Food they are very improper; they increase the Stimulus of the Food and renders the Fever which always accompanies digestion greater. Animal Food is of itself sufficiently stimulating and savoury without their assistance. They ought principally to be avoided in the prime of Life as like all other Stimulants they destroy the Tone of the Stomach and lay the foundation for early diseases. Persons who use those Substances freely in early life when old age comes on are troubled with Flatulencies, Indigestion, Costiveness; hence Obstructions in the Liver, and other Viscera and the whole train of disorders consequent upon these are produced. If they are ever proper it is only in Old Age when the torpid State of the Stomach requires something stimulating to excite it into action. The Condiments most proper to accompany Animal Food are the different kinds of Cresses, Radish, Horse Radish, Mustard and all plants of this kind. They stimulate the Stomach, are diuretic and diaphoretic and thus carry off the degenerated parts of the Fluids. The same may be said of Leeks, Onions

Onions and Garlic which also very properly accompany Animal Food.

The Condiments more generally employed are Salt, Vinegar and Sugar.

Salt is the Condiment most universally employed, it is the most sapid and least apt to pall. It has been said to be antiseptic; but this seems to be contradicted by our using it with Vegetables, and carnivorous animals are poisoned by it whereas the graminivorous are very fond of it and surely it cannot act here by any antiseptic Quality. Salt is particularly proper to accompany a Vegetable diet, it stimulates the Stomach assists digestion, excites Appetite and promotes the secretion of Saliva & the gastric Liquor - Animal Food preserved with salt is rendered hard and firm and of difficult digestion and thus predisposes to Scurvy and other putrid disorders. Salt Meat is very proper for persons troubled with Worms, particularly the Tape Worm, for when Salt is applied to Worms out of the Body it is found to destroy them. Sheep are subject to a disorder called the Rot which is owing to Worms in the Liver. Salt is found to cure this disorder and if Salt be given to the Sheep from time to time they will never be afflicted with this disorder. For this Reason the Farmers, in those Countries, where Salt is plenty, put large pieces of Rock Salt into the Sheep folds that the Sheep may lick it whenever they have a mind. Whether this first gave the Idea to Physicians of prescribing salt for the Cure of Worms or not is immaterial. Certain it is that much benefit has been received from its exhibition. Dr. Rosen lately a first Physician to the King of Sweden, always directed his Patients to live for two or three Weeks upon Salt Meat before they took any Medicines for the Worms. He also directed them to eat a piece of Salt Meat or Salt Irish Herring for Instance for Supper and to drink nothing for some time after it. By these Means the Worms were not only deprived of their proper Nourishment but were also exceedingly distressed by the Salt and afterwards yielded more readily to the Medicines that were administered - A very good domestic Medicine for Worms

Worms is a little Salt mixed with Molasses and taken every morning for two or three Weeks. This will seldom fail to effect a Cure. Salt has been much recommended of late as a specific in spitting of Blood also in vomiting of Blood. I have given it a fair trial in four Cases. The dose is two or three Spoonfuls a day. It may be taken either dry which is the best Method or dissolved in Water. In one Case in which I tried it, it had no Effect. In three others the Complaint was relieved but other Medicines were combined with the Salt which might have had as great a share in producing Relief as the Salt. In the two following Cases it produced very good Effects.

I was called upon to visit a Gentleman then about 32 Years of age whom I found spitting up clear Blood from his Lungs. He had never been troubled with this Complaint before and was free from pain or any uneasy Sensation in the Breast and his pulse was neither hard nor full. He knew not what to attribute his disorder to unless that some days before he had crossed a Creek which proved to be deeper than he expected so that his Horse was obliged to swim and he got wet to his middle. I ordered him to lose about 12 Ounces of Blood and to take two Scruples of Glaubers Salt every two hours. The Medicine opened his Bowels gently and he was relieved considerably of the spitting of Blood. I advised him to continue the Medicine and to use Barley Water for common Drink and to live very low. But the next day in the Afternoon the Spitting of Blood returned as bad as before, altho' he had taken the Medicine regularly and had strictly complied with the Regimen I had prescribed. I then ordered him to lose six Ounces more of Blood and to take Zij of powdered Salt every 2 hours. By this course he in a very little time recovered of his Complaint and has never had a Return of it to this day.

Some time after I was called to visit a Lady 50 Years of age of a delicate habit of Body. She had been troubled all the Winter

Winter and Spring with what is commonly called a Cold with a troublesome Cough, uneasiness in the Breast and low Fever. The day I saw her she had been seized with a spitting of pure Blood from her Lungs. As she was rather Weak and never bore Bleeding well, I ordered her to lose only eight Ounces of Blood and to take \mathcal{Z} s of Glaubers Salts every two hours. As this produced no Relief and the Case was now attended with faintings truly alarming. I ordered a Blister to be applied to the upper part of each Arm, and a half or a whole Teaspoonful of common Salt to be taken every two hours. As this disagreed with her Stomach very much, I ordered a strong Solution of the Salt in Water to be made, of which she was to take as much at a time and repeat it as often as her Stomach would bear. This still continued to nauseate her Stomach as indeed every thing did which she took. She was after some relieved of her Complaint and has had no Return of it. She used the Solution for several Weeks after she was relieved and continued under a very strict Regimen for several Months. I have since had recourse to Salt in several other Cases and always with evidently favourable Effects.

Vinegar gives a grateful Taste to our Aliment, stimulates the Stomach and excites the Appetite. It is a very proper Condiment for Animal Food, as it resists the Tendency which that has to putrefaction. It is also very useful with Vegetables, as it determines to the acrid Fermentation and thereby prevents the bad Effects of the Vinous, for during this last, as we have already said the noxious Gas is generated. Vinegar however to produce these Effects should be pure and unmixed. When it contains a portion of unfermented and Saccharine Matters, it is liable to undergo the Vinous Fermentation and to produce all the bad Effects of recent Vegetables. Sugar is one of the chief Ingredients and indeed the principle of Nourishment

Nourishment is Vegetable Aliment. I am not however now to consider its nutritious Qualities, but am to speak of it as a Condiment. It can not be used for any length of time and in large Quantities as it will pall the Appetite. It is liable to undergo the Vinous and Acetous Fermentation and hence is capable of producing all the bad effects of recent acescent Vegetables. It is powerfully ^{antiseptic} and hence is very proper Condiment for animal Food, with which it ought to be used in preference to Common Salt. Meat preserved by Sugar is not rendered so hard as that preserved by Salt and hence is more soluble and easy of digestion. This we may observe very readily in Bacon. Some people have their Bacon much more soft and juicy than others which entirely is owing to the mode of curing it. Those who use Sugar along with their pickle will have their Bacon much nicer, than those who use Salt alone. It is likewise observed that the Hogs in the West Indies which live on Cane have their Meat much more tender than those which live on other Food. It is customary among the people in the Northern Part of Europe to use sweet sauces with their Meat especially in the Winter. It is also the practice in some parts of New England to use Molasses with their Meat chiefly in Winter, for in the Summer it is neither useful nor necessary. This is a very judicious practice. As Sugar is liable to undergo a vinous and acetous Fermentation it is prejudicial to those who are troubled with Flatulencies, Indigestion & a prevailing Acid in their Stomach as it increases this Acid. It is very useful and proper in all cases of Rigidity and whenever there is a disposition to putrescency. Sugar has been accused of causing Disorders of the Teeth; this it was thought to do by sticking to them, becoming acid and thus corroding them. But how so soluble a Substance as Sugar can stick to the Teeth and corrode them, especially if we consider that it must ferment before it can become Acid is to me perfectly unintelligible. How can an Acid corrode the Teeth when we see that whole Nations live upon Raisins that are much more acescent than Sugar without having their Teeth affected more than those who never taste Sweets. It is probable that hot

Teas, hot Coffee and the free use of Spirituous Liquors contribute much more to injure the Teeth than Sugar. These relax the Gums very much and may thus cause Disorders of the Teeth. There are two Causes to which I principally assign the early loss of Teeth in this Country. In the 1st place I think we may justly accuse the Climate; there is no place where the Vicissitudes of Heat and Cold are greater than here, hence we are subject to Rheumatic Affections of the Head and Face which generally affect the Teeth. The 2nd operates principally on the Fair Sex; they are frequently troubled with Indigestions and other disorders of the Stomach which we know affect the Mouth and Teeth. Foreigners Observe that the Women in this Country in general have very bad Teeth.

Sugar also has been accused of producing and increasing Worms in the Body. It has however quite a different Tendency, for when applied to a Worm out of the Body it will instantly kill him. Whilst the Worm remains at rest in the Intestines, the patient is easy, but when he crawls along the smooth Membrane of these parts a great pain and oftentimes Convulsions are produced. This often happens when the patient has eaten a Quantity of Sugar and is commonly ascribed to the Worms moving towards the Stomach. Through eagerness to get at its favourite Food. But we find when Milk the proper Nourishment of Worms is taken no such Effect follows. And we often find Convulsions are produced when very efficacious Medicines are taken to destroy Worms. We must therefore conclude that these Effects are owing to the Worm moving from the Stomach by that principle of Self preservation which teaches him to avoid the Food, which would prove his Destruction, as it is to him a Poison. It is highly probable that the less frequent Appearance of Worms and the Diseases arising from this Cause is owing to the more general Use of Sugar. Since the Use of Sugar has become more common many Disorders which formerly were very frequent seldom or never appear. A great Change has of late taken place with regard to Diseases: in the last Century ~~where~~ people lived chiefly on Meat and strong Food and from their manner of Life were much exposed to Inflammatory and putrid Disorders

Disorders, and their diseases were in general of this kind. Since Tea and Coffee with Sugar have been generally used those Disorders have been greatly diminished and the whole Train of Nervous Disorders have made their appearance which very rarely appeared among our Ancestors. If we consider that Nervous Disorders are not so fatal as the Inflammatory and putrid and are more readily cured we will have great reason to be satisfied with the change. We are also relieved of that loathsome disease the Leprosy which frequently affected our Ancestors who were obliged to build Lazarettoes or Hospitals to confine the Lepers and cut them off from Society. If we likewise consider that our Intellectual Faculties are as much improved we will have still more reason to be satisfied with the Change of diet. That Animal Food dulls the Faculties Artful Gamesters bear Witness: I have heard of a Gentleman who realized a princely Estate by his Skill in Chances. Whenever he expected to be deeply engaged in play in the Evening, he abstained from Dinner and confined himself to his Room the whole Day meditating upon and calculating the different Chances and taking for Nourishment only Tea, Coffee or very thin Broth.

The finer the Sugar the less subject to Fermentation; the Coarse Sugar is more fermentable hence becomes more acid and laxative. Hence the bad Effects of Sugar are more conspicuous in this coarse than in the fine. Many however have been deterred from using fine Sugar from the Lime which is employed in clarifying it, but we may assure ourselves that not the least particle of Lime enters into the Composition of the Sugar. Indeed Quicklime is employed for the Coarse as well as the fine Sugar. It is not so entirely separated from the former as from the latter. The fine Sugar should be preferred to the Coarse on all accounts. The fine possesses all the good Qualities of the Sugar with none of the bad. The Vegetables preserved with sugar have the same Qualities as the Sugar itself and no others except the acid Substances as Ginger, Elecampane which retain some of their original Qualities. In general only insipid Substances or such as are rendered so by boiling are prepared in this way. Vinegar preserves have the same Qualities with Vinegar itself. They are rendered very difficult of Digestion and are therefore highly improper for persons of a weak

a weak Stomach. Dr Cadogan inveighs very much against the Use of them, but tho. they may be very hurtful in the Disorder he treats of, the Gout, and in all Cases of a Weak Stomach they are very proper Condiment to accompany Animal Food where a person is in Health.

We have now finished the Consideration of Vegetable Food and are to proceed to speak of Animal Food.

Animal Food differs from Vegetable in many essential Points.

1st As it is already of an Animal Nature it requires only Solution and Mixture to be converted into our Fluids, whereas the Vegetable stands in Need also of Assimilation. 2nd It is more easy of Digestion. 3rd It is more

nourishing. 4th It disposes to the Inflammatory and putrid Diathesis. The Consequence of a too free Use of Animal Food are all kinds of putrid Fevers, Scurvy and Dysentery. Animal Food is more stimulating than Vegetable. Animal Food also gives a richer and denser Blood. On these accounts it should be avoided in all Inflammatory Fevers, Apoplexies and by persons who are subject to Hemorrhages particularly from the Lungs. Young people particularly Children should use Animal Food sparingly and live principally upon a Vegetable diet. Animal Food like every other Stimulant proves injurious by wearing out the Tone of the Stomach. Persons like us who are chiefly employed in Mental Exercises ought to live more upon Vegetable than Animal Food.

The Solubility of Animal Food differs according to the Age of the Animal. The Flesh of full grown Animals is more tender and soluble than that of young animals; thus Beef is more soluble than Veal, Mutton than Lamb. By full grown Animals I mean those in the most perfect State when an Animal has arrived at its full ~~perfect~~ size both in height and Circumference not when grown Old for then the muscular Fibres become rigid and tendinous and the Flesh of Old Animals is therefore very insoluble.

Animal Food is more soluble according to its Alkalescency and hence Venison and all kinds of Game are of easy Digestion; Animals as they become older are more alkaliescent and on this account the flesh of Young Animals is less

less soluble than that of full grown. Solubility also differs according to Viscidity. The more viscid and glutinous Food is, the more difficult is it of Solution; of this Truth Turtle is an Instance. This is one of the most viscid Substances and scarcely be conquered by our digestive Organs, were it not for the Method of dressing it. It is mixed with great quantities of hot spices which stimulate the Stomach and excite it into action by which it is enabled to digest this Food.

The Flesh of Young Animals is more glutinous than that of the full grown. In young animals the Glands are larger and more numerous than in the Old. Their Bodies abound more with mucous and glutinous Fluids. In the young Animals the Muscular Fibres are more compact with little or no cellular Membrane interspersed between them, and on this account also young Animals are less soluble than the Older in which the Muscular Fibres are separated by cellular Membrane and Fat. On this account also the Lean of fat Meat is very easy of Digestion whilst the Lean of poor Meat is of the most difficult Digestion. Meat is more perspirable according to greater or less Alkaliscency. It is also perspirable according to Viscidity. That meat which is most glutinous is least perspirable. Hence Mutton and Venison which are most alkaliscient are most perspirable; Oysters and Fish from their Viscidity and little Alkaliscency least. From these Qualities we see that Oysters and Fish are very difficult of Digestion. They overload the Stomach and increase the Fever that attends Digestion. They remain longer in the System and hence may prove very nourishing, but then they should be used only by such persons as are capable of digesting them, such as work hard or use a great deal of Exercise. Persons living near the Sea side and subsisting on Oysters and Fish, are very robust. They are liable to be affected with Eruptions on the Skin, Scurvy, Dysentery, and other Disorders of a putrid Tendency. We have by Nature an Aversion to living for any length of Time on Animal Food or Fish of any kind. This we observe in the Salmon Fishery. The Servants employed in it make an Agreement with their Masters that they are not to live on Fish more than two days in the Week, tho' the Salmon is one of the most delicious and savoury of Fishes.

Solubility differs likewise according to the Manner in which the Meat is dressed. Meat by much boiling or roasting is rendered firmer and less
Alkaliscient

alkalescent and consequently less soluble. That Meat by boiling is rendered less alkalescent is evident from the practice in the West Indies and even in this Country. In Summer when the Meat has a Tendency to become putrid we pack it by which it will keep sweet a much longer time than it otherwise would. In the West Indies this practice is called jerking.

The next Subject we are to treat of is Milk; this is of an intermediate Nature between Animals and Vegetables. As it is of so much consequence too in Medicine and diet it deserves a particular Attention. We shall first treat of its Secretion.

In all viviparous Animals both male and female there are certain glandular Substances called Mammeæ or Breasts by which the Milk is secreted. These are the softest and least resisting of any Glands in the Body. They are placed outside of the Ribs free from all Compression being covered only with a smooth soft skin. These differ from all the other Glands in this Respect that the latter secrete their different Fluids at all times while the former secrete only at a particular time. The cause of their secreting only at particular times has afforded great Matter for Dispute among Physicians. It appears plainly that there is a great consent between the Breasts and Uterus. Thus the Breasts swell and become painful at the time of the Menstrual Flux. This Consent must be owing to a Communication of Blood Vessels, particularly to an Anastomosis between the Epigastric Arteries and those which go to the Mammeæ. Bartholine tells of a Youth afflicted with a Hernia whose near Pap always began to swell when the Truss which supported the Rupture was tightened, by which the Epigastric Artery was compressed. During Gestation when the distended Uterus compresses the Epigastric Arteries the Breasts swell; after Birth when the Epigastric Arteries are freed from Compression the Swelling of the Breasts recede from the new Determination that takes place. They likewise swell remarkably after Birth upon the Cessation of the Lochia when the Fluids are determined from the Uterus to the Breasts. From this new Determination it is that we may understand why in Infants a few Days after Birth

Birth there is sometimes Milk secreted. After the Umbilical Chord is tied the Blood which formerly passed that way runs into a new Channel. This new passage is productive of such an Impetus as to produce a Discharge of Blood from the Uterus of Infants. Instances of this you will find in the Transactions of the Royal Academy of Sciences at Paris. From what has been said we are lead to ascribe the Secretion of Milk to a derivation of Blood from the Epigastric Artery to the Breasts entirely independant of Plethora. All Women in Childbirth are not plethoric and yet they secrete Milk plentifully tho' a great deal of Blood has been lost at that time. Nay there are Instances of Women losing several pounds of Blood on account of Diseases besides the Blood ^{if} they had lost in delivery and yet Milk was secreted plentifully. It is even said that some Women have suffered a diminution of 16 lb. of their weight in 6 Weeks time and yet gave Milk sufficient to nourish their Child. Tho' the Secretion of Milk depends upon the derivation of Blood to the Mammas, it is considerably increased by Suction, nay there are Instances of a Flow of Milk being brought on by Suction in Virgins and even in Men. Such Instances occur in Haller, Russell and De Graaff. After a Flow of Milk has been brought on if the Child is not applied to the Breasts or if they are not sucked the Milk will be lost. The Child should be applied early to the Breasts on this Account and when this is done the ducti lactiferi are stimulated and the Fluids are discharged, by which Stagnation and Obstructions in the finer Vessels are prevented which oftentimes occasions Schirrus and Cancer and other Disorders of the Breasts. In the Lying in Hospital at London since the Physicians have obliged the Women to give their Children the Breast within 24 hours after delivery not above 2 out of 1400 have been affected with disorders of the Breast whereas formerly when the Child was not applied to the Breast for 3, 4 or 5 days after delivery these Complaints were very frequent.

Milk consists of three parts: 1st the Oily part or Cream, this in a great measure resembles the Vegetable expressed Oils and seems to be derived from them. 2nd Coagulable part which is of an Animal Nature and greatly resembles the White of Eggs. 3rd Water in which some Saline matters are dissolved: these three substances may be procured separate in the Form of Butter, Cheese and Whey.

Milk has commonly been supposed to be taken up into the Lacteals without suffering any Decomposition, this Notion is erroneous. It is de-
composed

composed in the Stomach, coagulated, fermented and afterwards taken up by the Lacteals and mixed with the Blood. As Milk is of an intermediate Nature between Animals and Vegetables it is particularly calculated for the Nourishment of our Body. It is particularly proper for Children and we find it is furnished for them by Nature as soon as they are born. For persons in an Atectic Fever it is peculiarly adapted. Milk has the good Qualities both of Animal and Vegetable Food and is devoid of many of the Inconveniences that attend either. Thus it is not subject to the vinous Fermentation and hence it is not liable to produce Flatulencies &c which arise from Vegetables. It is hurtful only to those who have a strong Acid in their Stomach, for in these the Coagulum or Curd is formed so hard as to be incapable of Digestion. Milk may also prove hurtful to persons recovering from Intermitents, as it tends to cause refrigeration by its Acescency.

Apes, Mares and Human Milk are not so acescent nor so easily coagulable as the Milk of the Cow, the Goat and the Sheep and form a more soluble Coagulum. The former do not contain so much Oil and Coagulable part and are very proper for persons without Fever, whilst the latter from their Acescency are much better calculated for persons with Fever. These last may be coagulated with Acids and the different Coagula, and hence are not so proper in weak Stomachs. The latter contain nearly the same Quantity of Cream, Coagulable part and Whey, except that of the Sheep which contains less Whey and less Coagulum than the others. Human and Apes Milk have been preferred to the others in some diseases. It may not be amiss here to enquire into the Cause of the preference and the Foundation of it. Apes Milk is not so acescent as Cows Milk and cannot be coagulated by the various Coagula or Rennets. By rest or Stagnation it separates spontaneously into its several parts. The Coagulable part falls to the Bottom, the Cream rises to the Top and the Serum occupies the middle part. It contains a large quantity of Whey with very little Cream or Cheese. It is even said that Butter cannot be obtained from Apes Milk. Mares Milk is very similar to Apes but contains still less oil. Human Milk is not coagulated by ^{the} Rennets usually employed for coagulating Milk. Even the strongest Acids will not coagulate it neither can this Effect be produced by boiling it. But if it is placed at rest in a Heat of 96° this Separation will take place of itself as appears when

Infants

67

Infants throw up their Milk by Vomiting. From all this we see that the distinction is founded in Reason. When the Stomach is so weak as to reject Sour Milk, it will sometimes bear Ases and Human Milk and we accordingly have Instances of Persons who were snatched from the jaws of Death by sucking a healthy Nurse. Human Milk differs very much in different Women. In some it is white and thick in others diluted and thin with very little Cream. The Milk of Nurses is very little affected with their Food much less than that of Ruminating Animals or those who chew the Cud. It is doubtful whether Purgatives given to the Nurse will affect the Child. Nurses labouring under Diseases will sometimes give very good Milk. There are Instances of Nurses who were affected with the Venereal Disease while the Children who sucked them continued free from it. Two Instances I have known of Nurses having taken Mercury until their Mouths were sore while the Children were not in the least affected; nor did the Milk change Silver black nor Gold white as we know the perspiration of Persons taking Mercury will do. This strongly confirms an Opinion I formerly advanced that the State of the secreted Fluids depends more upon the secretory Organs than upon the State of the Fluids from which they are secreted. The Passions of the Mind have a considerable Effect upon the Milk and there are Instances of a sudden Fit of Passion producing such a Change in the Milk that the Children sucking the Nurse have been thrown into violent Convulsions and death has ensued when the Milk has not been rejected by Vomiting. In these Cases the sudden Change produced in the Milk must be owing to an Alteration made in the Breasts and Organs of secretion. This Change is not confined to the Breasts or other Organs of Secretion; it also occurs in the Organs of Digestion. Thus a sudden Insult or unexpected bad Tidings affect Digestion and will suddenly render every Thing contained in the Stomach vitiated and corrupted.

We are next to treat of the Part from which Milk is secreted. There have been very different Opinions on this head. Some assert that Milk is secreted from the Blood, while others think that it is entirely derived from the Chyle. It is very difficult to determine this point as we do not know the true Analysis of the Chyle nor how much enters the Blood in a given Time, nor how long it is before it is converted into Blood. The
Advocates

Advocates for this latter Opinion assert that it is very improbable that Milk is secreted from the Blood in such large Quantities every Day (There being Instances of some Women who have given six Quarts of Milk in 24 hours and some Cows give 24 Quarts in that time) or that it should be derived from the Blood immediately. They likewise shew that Milk and Blood are of a very different Nature: Milk is resolved into Coagulable part, Cream and Whey. Milk is acescent and Blood is putrescent. There seems to be some Truth in the latter Argument, the former is not at all conclusive because as I have said above we know not the exact Quantity of Chyle that entered the Blood in a given Time nor how long it is before it is converted into Blood. This Opinion of Milk being derived immediately from Chyle is farther confirmed from Dr. Young's Experiment on a Bitch whose Milk he found to be alkaliescent when he fed her upon Animal Food and acescent when she lived upon Vegetables. Milk as has been already said is particularly adapted for Nourishment being of an intermediate Nature between Animal and Vegetable Substances possessing the good Qualities of both and in a great Measure exempt from the Inconveniences of either. By boiling it is rendered less acescent and consequently less laxative. It should be used when new rather than when it has been drawn a long Time as that has had time to separate. The Milk of ruminating Animals is of more difficult Digestion than Human, Apes or Mares Milk. It contains more Oil, is more acescent and partakes of the Nature of Vegetables. It is therefore very serviceable in all Cases of putrid and inflammatory Diathesis. In these Cases Butter Milk seems to be rather better and may be used with propriety. This is excellently calculated to produce a change in the State of the Humours and will often be serviceable where pure Milk would be improper. Milk is very excellent for Persons recovering from Inflammatory Disorders. Milk is very serviceable in Stetie Fevers and Consumptions. In these Cases Human and Apes Milk have been preferred. Persons in these Cases should not be restrained to any certain Quantity but should take as much as the Stomach will bear. Riverius and Hoffman give us Cases of persons rescued from Death by this Practice. Runnet Whey is likewise very excellent in these Complaints and in internal Ulcerations of all kinds. This will often be retained on the Stomach when Milk itself will be rejected. A Milk Diet has also been recommended in the Gout, as it is

it is accompanied with Inflammatory Symptoms. But in Old people who are more generally afflicted with this disease the Nervous System is generally weakened & requires something more stimulating than Milk. It is not safe to mitigate the Inflammatory Symptoms by Evacuations of any kind. Tho' some have found Relief from a Milk diet, it is not always safe to adhere to it as the Stomach often has been used to more stimulating Food. A Milk Diet will indeed in these prevent the appearance of the Gout in the inflammatory Form in the Extremities, but then other Disorders will be produced as fatal in their Consequences, if not more so than the Gout. Old persons should have a considerable Degree of Vigour remaining if they expect to prevent the Returns of the Gout by a Milk Diet or by any medicine indeed whatever. In Young people there is nothing to forbid the Use of Milk in this Disorder and it is particularly proper to correct the Inflammatory Diathesis. In these accompanied with a proper use of Exercise and Abstinence from Wine & Ux-
 very a Milk Diet will be productive of very happy Effects. If you recollect what I said on the Scurvy you will readily see that Milk is very useful in that Disease, especially Cows and Goats Milk and more particularly Whey and Buttermilk. Milk is very serviceable where Poison has been inadvertently swallowed. There is no remedy better calculated for Emergencies of this kind. It involves and obtunds the Acrimony of the Poison and by its demulcent Effects guards against Spasms of the Stomach. Hoffman tells us of ten Boys who had taken Arsenic (mixed in an Oaten Cake for destroying Vermin) who were all cured by drinking plentifully of Warm Milk. It defends the tender Coat of the Stomach and Intestines from the Acrimony of the Poison and serves as a very good Vehicle to carry it off. There is likewise this advantage in Milk that when Children have swallowed Poison we can more easily persuade them to drink a large Quantity of it than of sweet Oil or Warm Water. Persons who have swallowed Poison should live for sometime after they have been freed from any immediate Danger upon a Milk Diet & take now and then a Dose of Castor Oil; for there are Instances of persons dying from Poison being swallowed a considerable Time after they were thought to be quite out of Danger. Milk is very useful in Disorders of the Stomach and Bow-
 els, as Diarrhoeas and Dysenteries which are often mitigated and sometimes perfectly cured by the use of it after more potent Remedies have failed. In these Disorders the Natural Mucus of the Intestines is abraded and Milk by its demulcent Qua-
 lity supplies its place. From this Abrasion the Coats are irritated and inflamed and hence the Gripings and Convulsions. By boiling Milk is rendered more glu-
 tinous

tinuous and less acescent and consequently better adapted to these Diseases. To render the Milk more glutinous various substances have been added. A Woman near Germantown acquired great Fame for a supposed Specific which she had for the Flux. Upon enquiring into the Matter I found her secret consisted in boiling a Sheet or two of White Paper in Milk. Another Domestic Medicine is $\frac{1}{4}$ of a pound of Mutton Suet boiled in a pint of Milk and drank at once at Bed time and once more only repeated. This I have seen used with singularly good Effects. All these various preparations act by their demulcent and Oily Quality defending the Intestines and supplying the place of the natural Mucus. Marsh-Mallow Root, Comfrey Root, Sago, or Salep or if the Composition is to be more medical Gum Tragacanth or Gum Arabic boiled in Milk will produce equally good Effects. Milk is particularly calculated for producing a Change in the Humours when we wish to extirpate a Constitutional Disease in which both Fluids & Solids are affected. Milk has likewise been recommended in Cancerous and Scrophulous Disorders. In these there is generally a vitiated State of the Humours and a Change in them I have already told you is only to be brought about gradually and more by Diet than any thing. Milk is better adapted for this purpose than any other substance we can employ. Sylvanius tells us he relieved a person of a Cancerous Tumour in the Neck of the Uterus which had been there a considerable Time by a Milk Diet alone. When a Cancer is ulcerated a Sanious, acrid Matter is discharged which causes great pain to the patient. This Discharge is increased by every thing that is stimulating and is rendered much milder by the Use of a Milk Diet. Milk is also of the utmost utility in Venereal Complaints. Hoffman tells us of a Gentleman who had been for a long time afflicted with the Venereal Disease and was at last cured by a Milk Diet without any other Remedy. The late Dr. Monro likewise gives us the Cases of two Young Gentlemen who were afflicted with Venereal Ulcers for which they had taken a Variety of Medicines and had been repeatedly salivated; the Ulcers however continued to increase both in Breadth and Depth. The Doctor at length advised them to go into the Country and live solely upon a Milk Diet. They followed his Advice and in about six Weeks time were perfectly cured. From hence we see that Milk deserves the most important Consideration. It is furnished by Nature for all Young Animals and is particularly fitted for their Nourishment. It claims the first place in a dietetic Regimen.

We have now finished the Consideration of the Nutrientia. We shall here just briefly recapitulate what we have said in the preceding Lectures. We began with observing that all our Aliment was either of an Animal or Vegetable Nature and we asserted that Man was destined to live upon both. This we proved from the Structure of his Teeth and Intestines and found it strongly confirmed by the Advantages of a mixed Diet and the Disadvantages of either alone. We in the next place considered Digestion, in which we found the Saliva, Liquor Gastricus, Bile and Pancreatic Juice were of considerable Service. We then took Notice of some Hypotheses concerning this process and found that some ascribed it to a Solvent whilst others supposed it to be owing to Mechanical Force; who considering the Stomach as a Muscular Organ and computing the Force of the lesser Muscles from thence supposed the Force of the Stomach to be more than sufficient to grind any Aliment relieved into it. M. Reaumeur's Experiments shewed us that neither of these were entirely right, tho' perhaps neither were entirely wrong. We made it appear that Digestion is at least completed in the human Stomach by fermentation, of which there are three kinds, Vinous, Acetous and putrefactive which are prevented from going too far by the Liquors above mentioned but principally by the Bile which we found acted by its Bitterness and that this was neither alkaline nor putrescent. We found that Vegetables were nourishing in proportion to the Quantity of Sugar and Oil that they contained, and they are more easy of Digestion and less noxious in proportion as these Parts are more intimately blended; hence Grain in which these are intimately united is very wholesome while Nuts in which these are not properly united are difficult of Digestion and are apt to prove flatulent. We also observed that a Vegetable Diet was improper for persons troubled with Flatulencies, Acidity, Indigestion and Costiveness arising from this Cause and for such persons as are troubled with the Hysteria and Hypochondriac Diseases: that it produced the Heart-burn, Colic, Diarrhoea and Cholera Morbus; that it is very useful wherever there is an inflammatory or putrid Diathesis, that in these last Cases Animal Food was highly improper, but that it is useful wherever there is a prevailing Acid. That Animal Food was more soluble than Vegetable, and that it was more soluble in proportion to its Alkaliscency and smaller Degree of Viscosity. We also found that Meat which was overdone was less soluble than that which was rare done. Tho' some persons have lately asserted that Meat was more soluble in proportion as it was done. This at least appeared

appeared to be the case in the person on whom Dr. Stevens made his Experiments which are enumerated above. We also treated of Condiments & found that the Aromatics were very improper to accompany Animal Food but were very useful with Vegetables and therefore they grow in Warm Climates; that the Cress kind and Alliacs were the best for animal Food; that Salt was the most grateful Condiment, that it excited Appetite, when pure resisted putrefaction, that Sugar was antiseptic, nourishing and destroyed Worms, that Vinegar resisted putrescency corrected the Inflammatory Diathesis and assisted Digestion. We also spoke of Drinks and found that they were of Use to supply Fluid to the system, facilitate Digestion, that when taken in moderate Quantities they assisted Digestion and conduced to Nutrition, but when taken in large Quantities that Nutrition was hindered.

We also observed that as liveliness of Imagination, Delicacy of Feeling, quickness of Apprehension, Strength of Judgement &c more remarkably accompanied a Weak than a Robust habit of Body, Studious persons (and those who prefer Strength of Mind to that of the Body should live principally upon a Vegetable Diet—

The next Class we are to consider are

Astringentia

By this Term we mean such Substances as have the Power of approximating the Fibres of the Body and increasing their Cohesion. They will exert their Effects not only on the living Body but also after Death: thus Oak Bark is a very powerful Astringent and is employed in Tanning to render the Hides of Animals dense strong and firm. This Property is not peculiar to the Oak Bark but is common to all the Astringents. The Number of Astringents is very great. They are obtained from the Mineral and Vegetables Kingdoms and are discoverable by the following Signs: Upon tasting them the parts are very much constricted and corrugated; the palate feels a disagreeable Roughness and the Lips become pallid. The Vegetable Astringents likewise strike a black Colour or form Ink upon being mixed with any of the Preparations of Iron.

Hoffman speaking of the Use of Astringents says, if the Administration

tration of any Medicine requires great Caution that of Astringents certainly does for when given unseasonably they produce the worst Consequences. Thus by the improper Use of Astringents we find Aëtic Fevers, Cachexies, Edematous Swellings, Colics and Spasmodic Affections of different Kinds produced. Synonymous to Astringentia are the Terms Roborantia, Constringentia, Consolidantia, Styptica with regard to the Solids; with regard to the Fluids are the Terms Coagulantia, Condensantia, Incrassantia &c.

With regard to the Operation of Astringents, some suppose they act wholly on the simple Fibres, whilst others imagine they act on the Nerves of the Stomach and by means of them extend their Action over the whole System. Those who favour the first Opinion supposed that the Astringent is taken up into the Blood and by means of the Circulation conveyed to the different Parts of the Body when it will exert its Effects. But if we consider that if this were the Case it would take some time before the Medicine could produce its Effects in the different Parts, whereas when Astringents are given internally for checking Hemorrhages of distant parts. e.g. of the Uterus, we find the Effect produced almost as soon as the Medicine has arrived at the Stomach. This single Consideration is sufficient to show us that this Opinion is not well founded. There are however other Arguments which tend to show this. Thus if the Astringent were distributed thro' the whole Mass of Blood a very little of it would arrive at a particular part and therefore to produce any considerable Effects it would be necessary to give it in large Quantities: We find on the contrary that small Doses will in a short time produce very considerable Effects. Also if some particular Astringents were, without undergoing any Change mixed with the Blood they would cause a Coagulation of the whole Mass which we know would inevitably occasion the Death of the Animal: from these Arguments we find that the Astringents cannot exert their Effects by means of the Circulation and hence are led to adopt the other Opinion viz. that Astringents operate solely upon the moving Fibres by means of the Nerves of the Stomach. It is true Astringents will act upon the dead Body, but then they affect only the Fibres with which they come immediately in Contact. Whereas in the living Body they extend their Effects over the whole System: this they undoubtedly do by acting upon the Nervous System.

Astringents are employed externally and internally to check Hemorrhages. With regard to the internal Exhibition of Astringents in Hemorrhages it will be necessary to attend to the following Rules. If the Hemorrhage arises from the

the Suppression of some natural Evacuation, even in some unusual place it ought not to be suppressed untill the natural Evacuation is restored. Thus if from the Suppression of the Menses an Ulcer is formed in any part of the Body from which Blood issues periodically it is not to be suppressed untill we have brought on a flow of the Menses. After the Humours have been brought into their proper Channel small doses of weak Astringents may be given.

Any Hemorrhage become habitual indeed any unusual Hemorrhage whatever ought not suddenly to be suppressed. We should first use Bleeding and the Antiphlogistic Regimen in order to give a new Determination to the Humours. If these fail small Doses of weak Astringents may be employed. In Cases of Hemorrhage there is generally a relaxed State of the Intestines producing Costiveness. This is apt to be increased by the Use of Astringents, we should therefore combine gentle Laxatives with our Astringents. When a Hemorrhage is so violent as to threaten the Life of the Patient we should have immediate Recourse to Astringents without paying any Attention to the Inconveniencies arising from their Exhibition. In this Case we should use the strongest Tropic Astringents. If the Patient is plethoric and of a robust Bit of Body Bleeding will be very necessary as Hemorrhages in such Persons are generally attended with febrile Symptoms. If this is not the Case and the Hemorrhage is owing to Relaxation as is often the Case after Amputations Bleeding will only increase the Relaxation and render the Hemorrhage greater. In this Case we should trust to Astringents alone. Dr. Monro's Observations on this head are very good. It may be of Service to you to know that recent Hemorrhages may be suppressed more safely than those which have continued for a long time. No Hemorrhage ought to be entirely suppressed untill the Cause producing it is removed.

In Hemoptoe the Use of Astringents is doubtful. If the Discharge is suppressed suddenly the Blood is accumulated in the Lungs and a Suppuration and Phthisis Pulmonalis is often produced. Astringents should not be given during the paroxysm, but may be employed after it in small doses. Critical Hemorrhages should not be suddenly stopped unless they threaten the life of the Patient which is seldom the Case.

Astringents are likewise used externally for the checking of Hemorrhages. Here they may act in two ways, by contracting the Solids or by coagulating the Fluids with which they immediately come in Contact. They are however of no great Service in this way. If only small Vessels are injured Dry Lint and prepared

preparation will more effectually stop the Hemorrhage. If a large Vessel is wounded a Ligature will check it sooner and will be much safer. Astringents are also employed in the Cure of Ulcers. It has commonly been supposed that there were Medicines which would supply Flesh when it was lost hence called Sarcotica. This we now know to have no Foundation. The only Medicines which tend to produce a Cure of Ulcers are those which conduce to the Formation of Pus. Ulcers often heal with difficulty from a laxity of the parts. Astringents by increasing the strength and Elasticity of the Fibres will tend to bring on that degree of Inflammation which is necessary for the Formation of good Pus. The Use of Peruvian Bark in promoting Suppuration is too well known to be doubted. It certainly acts by its Astringent Quality and other Astringents may have the same Effects.

Astringents are also employed in Gangrenes. They not only prevent putrescency, but also cure it after it has taken place. It has also been proposed to inject Astringents into the Abdomen to cure Dropsies. The Water may all be drawn off by the Operation of the Paracentesis, and it was thought that Astringents ought then to be injected into the Abdomen and by strengthening the parts prevent a Return of the Disorder. This Practice is now deservedly rejected. From Dissections it appears that the most frequent Cause of Dropsy are Obstructions of the Liver and other Viscera, and it cannot be cured unless the Obstructions are removed. Astringents would rather tend to increase than remove these Obstructions. If Dropsies were in general owing to a Laxity of the whole System, which however is not the Case, it would be in vain to strengthen the Vessels of any particular part without at the same time restoring Tone to the whole System. Astringents are hurtful in the Hydrops Pectoris and all encysted Dropsies. They may be of service in Anasarca, by strengthening the relaxed and weak habit of Body.

Astringents are likewise employed in Diarrhoeas and Dysenteries. These two Disorders are generally confounded. They are however different, tho' it is difficult to distinguish them as there is scarcely one Symptom of either which does not at Times accompany the other. Diarrhoea I told you when speaking of Fruits arises from Refrigeration. In it the Stools are liquid, frequent and of a natural Color, it is also accompanied with Gripings and Borborygmi. A Dysentery is occasioned by putrid Exhalations and this is perhaps the principal Thing which will enable us to

to discriminate between the two Diseases. In this the stools are frequent but not so copious as in a Diarrhoea and are slimy and frothy accompanied with a Tenesmus. A Dysentery according to the best Authors is generally attended with a Fever. Astringents should not be given in the Dysentery until the *prima Viae* are first evacuated. For this purpose we should employ such Substances as have some Degree of Astringent. Rhubarb and Spicacuanha are generally employed. After the morbid Matter has been evacuated a Discharge is frequently kept up from Laxity. In this case we may safely use Astringents and the peruvian Bark is one of the best we can employ.

Astringents have been likewise recommended in Evacuations of Mucus as the Gonorrhoea and Fluor Albus. In the first stage of a Gonorrhoea where there is an Acute Urine, Inflammation of the Urethra, Chordee, hem. Bleeding and the Antiphlogistic Method is certainly to be employed; tho' even here some use Injections of Saccharum Saturni which as we shall see hereafter is one of the strongest Astringents, but this practice appears to be highly improper. When the Inflammation is somewhat abated we may use Astringents sparingly: when the Inflammation is quite gone off if the Running still continues we may use Astringents with Safety. It will be best to give them first internally and if this is not sufficient they may be applied externally when Balsamics and Demulcents will not effect the Cure. The Fluor Albus is a Disease which seldom afflicts Young Women, but most commonly occurs in Women somewhat advanced in Life who have borne several Children and proves a frequent Cause of Barreness. If it has continued for any length of time we must observe the Rules laid down for the exhibition of Astringents in Hemorrhages. We should make ourselves particularly acquainted with the Cause of the Disease before we exhibit any Medicine for the Removal of it. If the Discharge is owing to Tumours and Ulcerations of the Uterus Astringents will be highly improper. In this case we must employ such Remedies as have a tendency to resolve those Tumours. Of these the Cureta is the principal. This with gentle Laxatives will often produce a Cure. When the Discharge depends entirely upon Laxity and Debility of the Uterus Astringents prove highly useful.

Astringents are also employed to excite the Secretions and Evacuations; this may at first appear rather unaccountable, but if we consider that the Suppression of different Evacuations is often owing to Weakness and Relaxation of

77.

of the part. You will easily see how Astringents by restoring Strength and Tone to the part will also restore the Evacuation. In this manner Astringents prove serviceable in the Chlorosis and in Costiveness arising from a weakened peristaltic Motion of the Intestines. Astringents are likewise recommended in the Stone and Gravel. They mitigate the pain attending these Complaints and sometimes entirely cure it. We have such well attested proof of their Use in these Diseases that we can have no doubt of it. Van Swieten and De Haen assure us that the Uva Ursi, which we shall find to be one of the strongest Vegetable Astringents mitigates and even sometimes cures the pain arising from the Stone, while the Stone itself is not altered either in Shape or Size as appears from the Catheter. Fischer asserts that all the most famous Lithontriptics ever in use either were Astringents or acted as such. This we shall consider more fully when we come to treat of the Virtues of the Uva Ursi & Lime Water.

The Use of Astringents in Inflammation is doubtful; the proximate Cause of Inflammation is an increased Action of the Vessels in the part. This may be brought on by various Causes, Thickness and Stagnation of the Humours which may be brought on by too great straightness of the Vessels or by laxity of the Vessels or external Stimuli. Where there is too great an Action of the Vessels as in the Young and Strong, Bleeding and the Antiphlogistic Method are highly proper. In the Old and Infirm Inflammation is generally brought on by a Laxity of the Vessels. In this Case Bleeding is improper and Astringents should be employed. In the Young Inflammation generally terminates in Suppuration in the Old in Gangrene in both which Cases we have seen Astringents are employed.

We come now to speak of the

Particular Astringents.

These are either Fossile or Vegetable. The Fossile are divided into the Earthy, Saline and Metallic. The Earthy are subdivided into Boles, Clays and Absorbent Earths.

Boles are of little Consequence in Medicine and might perhaps be entirely rejected; for as they are insoluble in Acids and the Fluids of our System no Effects can be expected from them. They have been said to act as Astringents, as they contain Iron or Alum but if we want to employ these Substances we should employ such Preparations of them as will enable us to ascertain the Dose with more certainty than we can in the Boles. If they exert any Effects in our System they are I believe bad ones. They have indeed been accused and perhaps with propriety

propriety of lodging in the plicae of the Stomach and Intestines and then forming or serving as a Nucleus for the formation of Calculous Concretions. They may be employed externally to dry up excessive serous Discharges by the Skin but then any dry powder will answer equally well.

The Clays or Argillaceous Earths are distinguished from Absorbent Earths by their not effervescing with Acids they are now never employed in Medicine as they can have but little or no effects upon our System. Absorbent Earths effervesce with and neutralize Acids of all kinds and for this reason may be employed when there is a prevailing Acid in the Stomach. They have been used in Diarrhoeas and Dysenteries. When a Diarrhoea arises from a prevailing Acid which is frequently the case in Children and which is discoverable by the green Colour of their Stools, Magnesia, Chalk, Crabs Eggs, or any other absorbent Earth by neutralizing the Acid may cure the Disorder. They do not here by any means act as Astringents. They are much oftener given with a view of opening the Bowels. As Dr Pingle has found Absorbent Earths to be septic by absorbing the Acid in the Stomach, they are highly improper in the Dysentery; we however still see them prescribed in this Disorder. Thus Calcin'd Hartshorne is added to the Decoctum albuin of the Pharmacopoea Parisiense of the Edinburgh Infirmary. Chalk has been substituted for the Calcin'd Hartshorne, but its Effects in this Case are certainly pernicious.

We are next to speak of the Saline Earths as Astringents: Of these the principal and perhaps the only one is Alum. This is formed by the Combination of the Vitriolic Acid with a particular kind of Clay. The Alum which we have in the Shops is artificially formed of this Clay. Of this we have two kinds the Roman and the Common Alum and whatever difference there may be with regard to their Use in Dying, there is certainly little or none in Medicine. When Alum is found native it is called *Alumen plumosum*.

Alum is one of the strongest and at the same time ^{one of the} safest Astringents. As it is easily soluble in the Fluids of our Body its Effects are soon extended over the System. It is of more general Use than either the Vegetable or Metallic Astringents for its Operation is much quicker. It acts in smaller Doses than the Vegetable Astringents and as it has a sedative Quality combined with its Astringency it may

may be employed when the Metallic Astringents on account of their Stimulus to prove hurtful. Alum has been employed with Advantage in Inflammation of the Eyes more especially when it is owing to relaxation and Debility as in Old people. I have already shown you how Laxity may prove the Cause of Inflammation by causing an Accumulation of the Blood in the Vessels of the part. When Inflammation is brought on by Laxity general Bleeding is pernicious but if there is too great a Quantity of Blood in the Part Topical Bleeding by Cupping and Leeches will be necessary to prevent a rupture of the Vessels. The general mode of employing Alum in this Case is to rub a piece of it in the White of an Egg untill it becomes hard and then spread it on a Rag and apply it to the Eyes. Alum is very useful in relaxed and putrid Gums in the Scurvy, mixed with Sage Tea and sweetened with Honey to serve as a Gargle. It may also be used in this Way in Anginas arising from Relaxation with good Effects. Sydenham in this Case recommends the Vitriolic Acid but Alum will answer full as well if not better.

Alum has been applied externally to dry up Excretions of the Skin, as excessive Sweating under the Arm pits. But as it is often improper to dry up such Excretions at all it is evident the Use of Alum in this Case must be very pernicious and oftentimes attended with imminent Danger. I once saw a Case where from drying up an Evacuation of this kind the Humours were thrown upon the Bowels and a Chronic Diarrhoea brought on which notwithstanding every Medicine was employed for his Relief at last carried him off. In violent Hemorrhages Alum is one of the best Substances and most to be depended upon when given internally. It may also be applied externally. Bleeding at the Nose may be stopped by filling the Nostril from which the Blood issues with a Tent or Dossil of Lint dipp'd in a Solution of Alum (even tho' it should put the Patient to some pain) and at the same time applying Cloths dipped in Cold Vinegar or Water to the forehead, Crown of the Head and Back of the Neck. These different Applications are you see intended to cause Refrigeration and to moderate the Impetus of the Blood. Alum taken internally acts both as a Sedative and an Astringent in checking Hemorrhages. Helvetius's preparation of Alum for which he obtained a premium and pension from Louis 14th of France

France is made, as every Dispensatory will inform you by melting Sanguis Draconis over the Fire in an Iron Ladle and adding to it as much Alum in Powder as it will take up. The Sanguis Draconis gives no additional Virtues to the Alum but only serves as a convenient Vehicle to form it into pills. In the Edinburgh Pharmacopoea Terra Japonica is substituted for the Sanguis Draconis to little effect as the Alum can receive no additional Virtues from it. The best Method perhaps on that which I invariably follow is to form it into Bolusses with Conserv. Rosar. from 4 to 10 or even 15 grains in a bolus to be repeated every hour or half hour if necessary. Dr. Thompson in the Medical Essays tells us that in violent Hemorrhages of the Uterus he has given half a Drachm every hour. Few Stomachs however can bear such large Doses without Nausea and even Vomiting. As we should endeavour only to moderate and not suddenly stop Hemorrhages small Doses frequently repeated should be preferred. A Nausea is so apt to attend the Use of Alum that it often times renders the Exhibition of it very difficult. Dr. Malouin assures us that if we combine a little Cinnamon with the Alum it will even prevent the Nausea. However this be there is no doubt but that Helvetius's Method, which I generally pursue is very rational viz. of adding Opium to the Alum. This will prevent the Nausea and give the Alum time to exert its astringent Effects. Dr. Grasbury assures us that Alum is of Service in the Colica Pictorum. Dr. Thompson recommends it in the Fluor Albus. Dr. Cullen advises it to be employed in Diarrhoeas and Dysenteries where he thinks it will not only act by its astringent but also by its antiseptic Qualities. It is also said to be serviceable in Intermittent Fevers when combined with Aromatics & taken just before the Fit comes on. It has also been recommended in continued Fevers: with regard to its use in these Disorders I can say nothing as I never had Occasion to make trial of it in those Cases. I am not forward in making Experiments upon my Patients, tho' if the Medicines usually found to succeed in these Cases should fail, I should have no Objection to trying the Alum and even then I should feel very uneasy whilst my Patient was under the Operation of a doubtful Remedy.

We are in the next place to enter upon the Consideration of Metallic Astringents.

The first of

The first of these is Copper. This is a Metal soluble in our Fluids and in all Saline Substances. It may be combined with Acids, Alkalies and Neutral Salts. If there is any difference in the Preparations those with Alkalies are the most Stimulating, with Neutral Salts the mildest and that with the Muriatic acid the most powerful Astringent. Copper is a very powerful Stimulant and excites Vomiting even when taken in very small Doses. As the Combinations with Neutral Salts are the mildest we should always prefer them. Copper has been used with very good Success in Dropsies where by its Stimulus it proves diuretic and purgative and at the same time by its Astringency gives some Tonic to the System. It is employed in Hemorrhages but in this Case it is inferior to alum or the preparations of Lead. The Roman Vitriol is applied externally to stop Hemorrhages which it does not only by contracting the Solids but also by coagulating the Fluids with which it immediately comes in Contact. Boyle in Cases of Hemorrhage recommends the *Ens Veneris*: but since his time Physicians have employed more time in disputing concerning the Preparation of this Medicine than making Trials of its Efficacy. Some have asserted that it is a Preparation of Iron. Boyle himself tells us that it is a Preparation of Copper and indeed no Preparation of Iron can produce the same Effects with the *Ens Veneris*. There are Directions for obtaining it in Crystals in the 1.st Vol of the Act. Natur. Curiosorum. It is in short this. We dissolve any Quantity of Roman Vitriol in Distilled or Rain Water and filter the Solution and to this filtrated Solution add *Spir. Sal. Ammoniac. volat.* untill nothing more will precipitate. We then pour on highly rectified Spirit of Wine to separate the Water which is to be poured off and elegant small sapphire coloured Crystals will be found which after being sufficiently dried are to be kept in a Bottle well secured from the Air. In this Case we have all the Advantages of any other Preparation and never any Muriatic Acid combined with the Copper. This is a very powerful astringent and Antispasmodic and takes off the Mobility of the Nervous System. Hence it is of service in Cases of Universal Laxity e.g. the Rickets as Mr Boyle observes. It has been used with Success in Mania and Epilepsy Boyle recommends the *Ens Veneris* as an Anodyne and says that it acts without the inflammatory Qualities, and restlessness produced by Opium. If we consider the properties of Copper we shall find it difficult to assent to this Assertion Experience does not confirm it. We may here observe what Galliaes even great Men are liable to fall into. The *Ens Veneris* in some particular Cases by acting as an

Antispasmodic might prove Anodyne but on this account to prefer it to Opium would be highly absurd. Boyle likewise recommends it in Petechial Fevers accompanied with Substus Tendinum and says it is particularly useful in taking off the Nervous Symptoms. In this Case also its effects are doubtful and I would never employ it unless the Medicines generally found to succeed in these Disorders should fail and then I would use it with Reluctance.

All the Preparations of Copper applied to Worms out of the Body instantly destroy them and there is no doubt but they would produce the same Effects in the Body if they could be retained in sufficient Quantities on the Stomach. A single Drop of a Solution of Copper in the Volatile Alkali vomited a Child to whom it was exhibited. The Cuprum Ammoniacum is more likely to succeed than any other Preparation. The Roman Vitriol has of late been employed in the London Hospitals for the Cure of Intermittents, and frequently with good Success. The Dose is from gr. ss to gr. j.

Copper is employed in Germany to prevent the Hydrophobia consequent on the Bite of a Mad Dog. The Dose is ℥ss of Copper Filings strewn upon buttered Bread. An experienced Physician of Copenhagen assured me that he had given it repeatedly to persons who told him they had been bit by Mad Dogs. I should not have mentioned this did I not find that Dr. President of the Society of Berlin mentions it and tells us that he had tried it and that it never failed of Success. There is no reason to doubt of this Gentleman's Candour and Veracity but whether the Dog was really mad is what ought to have been enquired into. Persons that are bit by a Dog being apprehensive that he is mad make use of any Medicine to prevent the Hydrophobia and when this does not appear they ascribe it to the efficacy of the Medicine when afterwards it appears that the dog the vicious was not mad. It appears to be this that deceived Dr. Mead with regard to his powder, which it is probable never produced any good Effects in a single Case of Hydrophobia from real Canine Madness. This Disorder is of a spasmodic Nature and is often attended with violent Convulsions. I had an Opportunity of observing this and the progress of the Disease in a Girl of 8 Years of Age at the Edinburgh Infirmary, where notwithstanding every thing was attempted for her Relief she died in a short time. Possibly Copper which is powerfully astringent and Antispasmodic may prevent the Hydrophobia from coming on.

Copper is applied in external Applications to Ulcers as a digestive and escharotic

escharotic. By stimulating the Vessels it may produce that degree of Inflammation which is necessary for the Formation of good pus. The Antients frequently employed it in both these Intentions. Mercury is now more generally employed. But there are Cases when Copper is preferable to Mercury. Dr. Cullen gives you an Account of a Disease that appeared a good many Years ago in Scotland with Ulcerations of the Mouth and Fauces, Ulcers in the Tongue about the Anus and in different Parts of the Body resembling the Venereal Disease but distinguished from it by the different Sloughs of the Ulcers, their pinnated Appearance, want of Infection from Carnal Communication &c. Mercury in this Disease was tried with no Success but Copper almost always effected a Cure. A Solution of Verdigris applied to the Tongue very easily cured the Ulcers there by inducing a good Suppuration, but as more difficultly applied to the Tonsils also less quick in producing a Cure. This Disease seems to resemble very much what in the Southern Part of this Continent is called the Jaw which we are also informed will not sometimes yield to Mercury. From this whenever we have a difficult Ulcer under our Care we should never despair of a Cure untill we have tried the Effects of Copper. For the purpose of Escharotics the best preparations of Copper are the Mel & Unguentum Egyptiacum. I would here advise never to be too free with Escharotics at all for by the frequent Use of them for the Removal of fungous Flesh a good Wound is often converted into an ill conditioned Ulcer. A Surgeon of great Experience informed me that he very seldom used Escharotics and when he did use them, he never applied them to the Body of the Wound but only to the Edges. When they are absolutely necessary we may apply some Mel Egyptiacum to the edges of the Ulcer. The Escharotics most in use are Roman Vitriol, Burnt Alum the red and White precipitates. As to the Dose of Copper taken internally no certain Rules can be laid down concerning them, for one person may take a certain Dose without Nausea, while at the same time half that Quantity will vomit another. The best Method is to begin with small Doses and to increase them gradually as Occasion requires.

Iron

This is a Metal of more general Use than any other it may be combined with most saline Substances and it is soluble in all the Acids. The Vegetable

Vegetable Acid however only corrodes it but extracts all its Virtues. It may be given in Substance as it will be corroded by the Acid in the Stomach; but this is always an uncertain Method for if it does not meet with this it will produce disagreeable Effects merely from its Weight and Mechanical Action. We ought therefore to use some preparation and it is of no great Consequence which we employ as they are all possessed of similar Virtues. When we want it in a powdery form Lemery's Method is the best viz. to let Water about an Inch deep digest upon Iron Filings by which Means part will be converted into a fine blue powder which may be separated from the uncorroded Iron Filings by shaking the Vessels. Iron combined with the Acid of Sea Salt gives us the *unctura Martis* of the Shops. This will readily combine with highly rectified Spirit of Wine and forms a kind of dulcified Spirit of Salt of a very agreeable Flavour. Iron is purely astringent without the stimulating Effects of Copper or the sedative and deleterious ones of Lead; but it is neither so powerful an Astringent as the one nor so much of an Antispasmodic as the other. From its Astringency Iron is indicated in all Cases of Scurvy and Debility and in Obstructions and Sluggishness proceeding from this Cause. Iron is likewise employed as an Antispasmodic taking off the Mobility and Irritability of the moving Fibres. It is on this account indicated in the Hysterics, where it is not to be given during the Paroxysm, but it is to be employed ^{in the Intervals of} the Paroxysm to prevent its Return. It often proves a Cure in this Disorder and it is probable would prove so oftener were not this Disease frequently accompanied with Obstructions of the Viscera. On this account I generally ^{combine} some Magnesia with the Chalybeate Chalk or any other Absorbent forms a Neutral with the acid in the Stomach which proves a gentle Laxative and prevents the Costiveness which would otherwise take place. This Combination produces better Effects than any other preparation except the mineral waters which often produce Effects not to be imitated by any preparations in the Shops. This is undoubtedly owing to the smallness of the Doses as they contain nothing but Iron, and the strongly impregnated waters seldom answer so well as the weak ones. Iron is sometimes combined with Bitters and Aromatics and in this way it may be given to Advantage in a very relaxed State of the Stomach. Whenever we must continue the Use of Iron for any considerable

Time

Time the most agreeable way of taking it is to quench a Red hot Iron in Cyder
 or Wine and make Use of it for a common Drink. Iron has been recommended in
 the Hypochondriac Disease, but as this Disease is commonly attended with Rigi-
 dity the Use of Iron is certainly improper. It seems to have been given on account
 of the Similarity which some supposed to take place between the Hysteria and Hy-
 pochondriac Disease: we know them now to be entirely distinct. Dr. Cullen gives
 the History of each Disease and points out the difference between them very properly.
 The following Circumstances will tend to shew us that they are distinct. The Hy-
 steric Disease is accompanied with a Laxity of the Solids, Flatulencies, a disor-
 dered State of the Bowels and frequently with loose Stools: It generally attacks
 Women, is purely spasmodic, is generally incidental and is relieved by Cold Wea-
 ther, hence it is not so frequent in the Northern as in the Southern Climates.
 The Hypochondriac Disease is accompanied with a Rigidity of the Solids, Con-
 stiveness and sometimes Spasms of the Abdomen, but it is seldom purely spasmo-
 dic. It generally attacks people of a melancholy Temperament and in the decline
 of Life is commonly habitual and is not so frequent in the Southern as in the
 Northern Climates; they are sometimes both combined in the same person.
 Iron has been employed for the Cure of Intermittents particularly by Dr. Stahl &
 his Followers. They laying it down as a Maxim that a Fever was an Effort of Na-
 ture to throw off some morbid Matter from the Body thought it improper to dis-
 turb her in her Operations and therefore employed the Peruvian Barks very sparing-
 ly. They made Use of a very subtle Crocus Martis but did not know that this
 acted in the same Manner with other Astringents and even Peruvian Bark itself.
 Iron is employed with Advantage in the Chlorosis and Suppression of the Menses
 owing to this Cause. I say owing to this Cause because a Suppression of the Menses is
 not always owing to this Cause but is oftentimes occasioned by Rigidity and Spasms
 of the Uterus in which Cases Iron proves hurtful. The use of Iron is improper in
 all Inflammatory Diseases and in Hemoptoe and other Hemorrhages atten-
 ded with Inflammatory Symptoms. It is improper in all Obstructions of the Viscera
 and wherever there is a Disposition to Putrefaction. It ought likewise to be avoided
 in Consumptions and Plethoric Habits. In Bilious Diseases we ought not to
 use it except in small Doses. In Ulcers of the Lungs and other Viscera it is not
 to be given unless very much diluted. In these Cases the Mineral Waters will
 answer better than any other Preparation. If our patient cannot have the Ad-
 vantage

Advantage of these we may make an Artificial Mineral Water by dissolving four or five grains of Sal Martis in two Quarts of Water. The Use of this should always be accompanied with a proper degree of Exercise. Iron is possessed of a considerable Vermifuge Quality. Chalybs fift has been commonly employed in this Intention. I have frequently made Use of it with Success. I now however generally use Sal Martis and think it much preferable to the prepared Steel or any other preparation. It not only destroys the Worms present but by strengthening and giving Tone to the Intestines it prevents their future Generation. for when we come to treat of Anthelmintics we shall find that a relaxed State of the Intestines is the most frequent Cause of Worms. I generally give it from gr.ij to gr.v. at a dose mixed with a little Molasses or Syrup not only to conceal the Taste but also because all Sweets have the power of destroying Worms. I have found Sal Martis to be a very useful Remedy in Relaxation of the Stomach producing Indigestions, Flatulencies and frequent Returns of a violent Colic. In these Cases I generally give it in doses of gr.ij made into Pills with Castile Soap and occasionally a little Rhubarb added to prevent Costiveness. Sal Martis and all the other preparations of Iron will give a dark Colour to the Alvine Faces.

The next Metallic Astringent we are to treat of is

Lead.

This is only used in Medicine when combined with some other Substances. The Calx of Lead with Oil forms the Emplastrum Commune which is the Basis of most other plaisters. In this Lead answers no other purpose but that of giving proper Consistence. Lead is active only when combined with any of the Acids, but in Medicine we generally employ the Composition of it with the Vegetable Acid. This gives us the Acetum Lithargirites of Goulard a famous Surgeon of Montpellier in France, which is the Basis of the Bougies that go under his Name. The Acetum Lithargirites is prepared in the following Manner. We take as many pounds of Calx of Lead, e.g. Litharge as pints of Vinegar and boil them together over the Fire. After they have boiled for some time We pour off the Liqueur and keep it for Use. Half an Ounce of this Extractum Saturni as M.^r Goulard calls it is to be added to a pound of melted Wax. When these are fully incorporated we dip pieces of Linnen cut in the Shape of a Tongue into the Composition, and when they are cold

cold we roll them up into the form of a Bougie. These will answer very well if the Caruncles or excrescences in the Urethra are not of long standing. When they have remained a long time with Fistulas we must make our Bougies something stronger we then take an Ounce and a half or two ounces of the Extract. Saturni to 6 ounces of Wax and dip the former Bougies into this Composition. Bougies prepared of nothing but Wax, Deer's Fat, and Oil of Almonds have been found of service where the Urethra is so sensible as not to bear any other Bougies. Some add Mercury to their Bougies but those we have described will answer every Intention of a Bougie. The Linnen we make use of for making Bougies should be fine Holland; that which has been worn by which it is rendered softer, cut into a linguiform shape answers best. The Composition should neither be too hot nor too cold and be should be careful not to suffer any Air Bubbles to remain on the Linnen which would render the Bougie unequal. Bougies are used when there are Excrescences in the Urethra with or without a Gleet. We know that these Excrescences exist when the Water will not pass in a continued Stream, but oftentimes comes off by drops and sometimes by two streams with pain. They are generally immitted at night and suffered to remain till Morning. They frequently produce pain with some degree of Inflammation and consequent Suppuration. They destroy Caruncles by inducing a Suppuration in them; they cure Gleet by producing a Constriction of the Glands in the Urethra; a relaxation of which alone we know sufficient to keep up the Discharge. Lead, besides its Astringent is possessed of considerable Sedative Virtues. It should always be used with the utmost Caution for when continued for any length of time it is apt to produce paralytic Affections of different parts particularly of the Extremities. The Acetum Lithargyretes is employed for various external Applications. It is generally employed considerably diluted. A Spoonful of the Acet. Litharg. with a couple of Spoonfuls of french Brandy are added to a Bottle of Water. This Combination is well known under the Name of Aqua Vegeto. mineralis or Lead Water. This is employed with Advantage in inflamed Eyes. A Drop of it is instilled into the Eyes at a time and is repeated three or four times a day or else a Compress moistened with it is kept applied to the Eyes. It is likewise said to be useful in Pains of the Ears when Deafness is apprehended. A teaspoonful is poured first into one Ear and 5 or 6 after into the other. A Compress moistened in it is very serviceable in Scalds, Burns and other Cases of this Nature. It is also employed in Cases of partial Erysipelas. but

but if it does not produce speedy Relief here the Use of it should not be permitted lest the Part should become gangrenous. It is recommended in fistulous Ulcers. In Sprains a Compress moistened with it produces very good Effects; it effectually takes off the pain and swelling which generally attends these Cases. M^r. Goulard recommends a poultice of Bread with the Acet. Litharg. in the Sparganymia. This Disease commonly called a Felon generally attacks the joints of the Fingers and after tormenting the Patient with a most acute pain for two or three Days some Degree of Suppuration takes place, an ill conditioned Ulcer is formed and the disorder generally terminates in the loss of the Joint. If this Application upon Trial is found to be possess'd of the Virtues M^r. Goulard attributes to it we may consider it as a valuable Improvement for no Medicine hitherto known has been found serviceable in this Disorder. This I mention that in Case you should employ it, you may not attribute the Failure to the inefficacy of the Medicine when perhaps it is owing to the Disorder being too far advanced. It is likewise employed with Advantage in the piles and in the Hernia Scrotalis and even in a strangulated Hernia; in this last Case it should be applied Cold. It is likewise employed in scrophulous Indurations of the Glands with Success.

Saccharum Saturni which is the Acetum Lythargetes in form of Chrystat is recommended by Boerhaave in Scurvy and Eruptions of the Skin, in particular Inflammations as refrigerant and as a Cognetic. It Yues one of the best practical Writers upon the Diseases of the Eyes recommends it in Inflammations of those Organs. It is employed in Scalds and Burns. M^r. Bell of Edinburgh prefers Solution of Saccharum Saturni in Water to the Acet. Litharg. as we can be more certain of the Strength of the former than of the latter; and the latter is apt to let fall a sediment which the former will not especially if a little Vinegar be added. Boerhaave, Heister and others recommend Saccharum Saturni in Solution to prevent its becoming Cancerous. A Scirrhus is a hard indolent Tumor which will often remain for a long time without giving the patient any Inconvenience; but if it is injured or any Stimulus be applied to it acute pains are frequently felt shooting thro' it, it ulcerates and becomes a Cancer. Lead by its sedative Qualities rendering the Part less sensible may prevent this Effect from taking place. In this Case I would prefer the strong Vinegar of Lead without any Spirit. It may be applied in form of a poultice with Bread or mixed with Flower to a proper Consistence and then spread upon a Rag and

and applied over the part. I consider the Introduction of Lead Water into general practice as a very considerable Improvement, but, like all other efficacious Medicines when employed improperly, it may produce bad Effects. Lead used inadvertently produces oftentimes paralytic Affections of Different parts. It is hurtful in Eruptions of the Skin from Relaxation. When it is employed for too great a length of Time in Erysipelas it may produce Mortification. Mercury and Lead are sometimes employed in Medicine combined under the Name of Trochisci e Minio. These have been used with Success in Scrophulous Ulcers. They ought to be used only when the Ulcers are few, for if they are numerous and the Medicine is administered too freely its Exhibition may be attended with disagreeable Effects.

Saccharum Saturni is employed internally in Hemorrhages when it acts both as an Astringent and Sedative. It is likewise employed in Diarrhoeas, Dysenteries, Haemorrhoids and Gleets. For a few Doses it may be given perhaps without bad Effects, but it should not be continued long as disagreeable Consequences will certainly follow. Sacch. Saturn. and R. Antiphthisica into which that certainly enters have been used with success in Continued Fevers and have proved very useful in taking off the Nervous Symptoms. Mr. John Hunter recommends the Sacchar Saturni in the Tetanus. I have never seen it tried in this Complaint nor do I know that it has ever been tried here.

White Lead is employed externally in the Form of an Ointment for the Cure of Burns. It ought not to be used long for it induces such a degree of Stupidity as renders the parts very difficult to heal. White Lead is also used by the Ladies as a Cosmetic to produce a fair hand and to take off those Freckles and Spots with which they are sometimes troubled. They however pay dearly for this short lived Beauty, the Skin becomes dry and shrivelled, a disagreeable Sallowiness with Pimples take place which remain during life.

Lead has been accused of producing the Colica pictorum and palsies of different parts. The Colica pictorum is distinguished from all the other species of Colic by its frequently terminating in palsies of the lower Extremities. The History of the Disease however will better enable us to know this Disease. The patient suddenly feels a twisting pain in the Abdomen but in general this is preceded by the following Symptoms. There is a Weight and oppression in the Region of the Stomach a Nausea and Aversion to Food: a heaviness of Mind, a Languor of Body, a dimness of Sight and a paleness of Countenance. A pain in the Abdomen generally situated about the Navel with a Sensation as if

if the part were twisting or as if Somebody were boring it. The Epigastrium some-
 times feels hard to the touch but not always, and is generally retracted towards
 the Spine with great pain. The pain sometimes remits for a short time but re-
 turns again with increased Violence, forcing Cold Sweats. From the Violence
 of the Pain the Patient is entirely deprived of Sleep; there is little or no Eva-
 cuation by Stool; when any Faeces are voided they are hard, round and sca-
 recely larger than Sheep Dung. The Anus is very much constricted and it is
 sometimes almost impossible to force a passage: it appears also to be drawn up-
 wards. The same Constriction takes place in the Urinary passages there is a
 great Sickness at the Stomach, Nausea and sometimes Vomiting which somewhat
 relieves the patient for a short time. In the beginning of the Disorder there is some-
 times no Fever; as it advances the pulse becomes frequent, small, weak and con-
 tracted. The Thirst is not very great. The Disorder generally continues in this Way
 for 12 or 14 days, about which time a slight pain is felt along the spine of the
 Scapula which at last becomes fixed and causes a Weakness in the Arms. This
 Weakness gradually increases untill it is changed into a paralytic Affection of the
 upper Extremities. The Feeling is much impaired, tho' seldom entirely destroyed.
 Sometimes both upper and lower Extremities are affected, but this is seldom
 the Case, the upper Extremities alone being most generally affected. From the
 time the Extremities are paralytic the Pain in the Abdomen entirely ceases.
 The most common Cause of this Disease is the Poison of Lead introduced into
 the Body: hence we find those employed in Mines digging of Lead and
 those especially who are employed in melting Lead and exposed to the Vapours
 of it are very often afflicted with this Colic. Potters also who make use of
 Lead in Glazing their Earthen Ware and are exposed to the Vapours are ^{so} sub-
 ject to this Disease that it has been called from them Colica figulorum.
 Painters who use White Lead in their Art are also very subject to this Disease
 and from thence it has been called the Colica pictorum. It is often found to be
 brought on by sophisticated Wines. Some Vintners when the Wines become
 rickish or tend to acidity mix with them a Quantity of Litharge or Sul-
 phur of Lead which sufficiently obviates this tendency. Dr. Franchin who has
 written an excellent Treatise on this Subject shews that in those Cities where
 the Houses are covered with Lead or where the Water that is used for Drink
 or Cooking is preserved in Leaden Cisterns, the Inhabitants are very subject
 to the

to the Colica Pictorum. He gives us an Instance in Amsterdam; the Houses in this City were formerly covered with Tiles, but when it increased in Riches, they were covered with Lead. The Leaves of the Trees which make Amsterdam look almost like a Forest being carried by the Wind upon the Tops of the Houses there undergoes a Fermentation and corrode part of the Lead. When it rains this part is carried down into the Cisterns with the Water which the Inhabitants use in their daily Food, and since the Houses have been covered with Lead the Colica Pictorum has been very common in that City, whereas formerly it was scarcely ever heard of. This Colic is very common in those Counties of England where great Quantities of Cyder are made and it has been commonly ascribed to the fermenting Juice of the Apple. Dr. Aken-side has shewn that it is not owing to the Cyder but to the Lead contained in the Cyder. He observes that in the Cyder Presses they mostly make use of leaden Pipes. If the Disorder were owing to the Cyder alone we should be as much or more subject to it in this Country, where Fermentation is carried on more vigorously from the Heat of the Climate, than the Inhabitants of Great Britain but we find this is not the Case. Our Cyder presses have no Lead about them, we employ Wooden or Iron Pipes. For the Cure of this Disease, it would only be taking up your Time to say any thing on it as it has been treated in so masterly a manner by many able Writers. You may consult Aken-side, De Haen, Aukham, and Pillary, Tissot, Tronchin, Cullen and many others. I shall only mention one Fact which I met with in Dr. De Haen's Ratio Medendi. Hungary is a Country rich in Mines but poor in Inhabitants, numbers that work in the Lead Mines are carried off Annually by the Colica Pictorum. Dr. De Haen observed that the mines in one particular Spot remained remarkably free from this Disorder. This they attributed to their having followed the Advice of a certain Itinerant Quack, which was to give the Men every morning before they went to work a piece of brown Bread spread with Hogs Fat or Lard. Since they had pursued this method which was about three years they had rarely ever been troubled with this Colic, tho' before that time it had been very frequent among them. This was confirmed to him by the Physicians who had attended these people for 12 Years. There is no doubt but that a Breakfast of this kind, which being difficult of Digestion would remain long upon the Stomach, would effectually tend to sheath and obtund the Acrimony of the Lead. A Dinner of fat Broths would still farther tend to produce this Effect. From this Fact we learn that Oil taken by the Mouth and thrown in by Glysters would be of great use in this Disorder. We also learn that the best preservative for those who are exposed to Lead as Printers

Painters is to live principally upon fat Meats and to use large Quantities of Butter and Oil, or to take from time to time a Spoonful of Oil.

The next Metallic Astringent is

Zinc.

This has been frequently used in various external Applications. N. L. Swieten recommends a Solution of the Flowers of Zinc in Water as an Astringent in Weakness of the Eyes. This Solution is also recommended when the Skin has been hurt by Friction or in Riding. In most Chronic Diseases the Skin is apt to break in different places; this we may generally foretell by red spots appearing on the Skin. If these parts are bathed with a Solution of the Flores Zinc the Skin will generally be prevented from breaking. Children and Fat People are apt to chafe or have their Skin sore in different parts: This may be prevented, or when it has taken place be remedied by the same Solution. Sapis Calaminaris and Tutty are employed to give Consistence in some plaisters and Ointments. They are supposed of no Virtues, for they will give no Impregnation to Water and show no Effect when combined with Vinegar. White Vitriol is a Combination of Zinc with the Vitriolic Acid it is employed externally in Hemorrhages it is likewise used with good Success in Inflammations of the Eyes. We may likewise employ an Injection of it with Advantage in a Gonorrhoea when the Inflammation is gone. It is said to be a powerful Emetic and is recommended to be given where Poison has been swallowed. The Flowers of Zinc have been lately introduced into Medicine with many Testimonies of their Efficacy. The History of this Medicine is found in the Medical Commentaries of Edinburgh, a Work begun some Years ago by a Society of Physicians in that City and continued ever since.

Having finished the Consideration of the Fossile, and particularly, of the Metallic Astringents we are next to treat of

Vegetable Astringents.

These differ from the Fossile in several material points: 1st They are not so quick in their Operation as the Metallic Astringents, 2^{ndly} Their Action is more confined to the prima Via; whereas the Metallic Astringents by their Stimulus extend their Effects more over the System; 3^{rdly} They are weaker and in any Exigency, as in violent Hemorrhages are not to be trusted to. Where we want to bring about a gradual Change in the System Vegetable Astringents are to be preferred but when we want a strong, certain and sudden Astringent they are greatly inferior to the Fossile. They should always if possible be given in substance for we have no menstruum to extract their Virtues. We have indeed Water and Spirit of Wine, but the Impregnations in general are very weak. Spirit of Wine likewise very much limits the Dose; for supposing ℥j of Spirit will extract ℥j of any Astringent which is allowing largely there are few Cases in which we can give an Ounce of a Spirituous Tincture without producing worse Effects than those we intended to remedy. There is a remark of Dr. Alston late Professor of Materia Medica at Edinburgh, that the peruvian Bark remains a long time upon the Stomach in a solid Form; it is probable that other Vegetable Astringents do so too. Dr. Cullen says he has seen the Bark thrown up unchanged 8 days after its exhibition and in this case the Stomach must have been in a Diseased State: and we find Food thrown up unchanged after it has remained a Day or two or even longer upon the Stomach. Vegetable Astringents when taken in Substance will remain longer upon the Stomach than when in Solution, hence their Virtues will be more completely extracted and they will prove more serviceable. As Vegetable Astringents are longer in the System before they are dissolved this is one Reason why their Operation is not so quick. When given in Solution they seldom produce such considerable Effects as when given in Substance: They pass off more quickly and are apt to prove purgative. They are likewise in this State subject to Fermentation by which their Astringent powers may be destroyed. As the fossile Astringents are not subject to this process and even resist it they are not liable to be changed in the prima Via. Whenever we want to produce strong, sudden and certain Effects we should employ Fossile Astringents; when we desire gradual Changes in the Constitution.

Constitution the Vegetable Astringents are to be preferred. They should be given in Substance in form of powders, Pills or Boluses. As by the long continued use of them we are apt to induce Costiveness, we may to obviate this, combine some gentle Laxative with them. Rhubarb is one of the best as it has with its purgative an Astringent Quality. We should be careful not to employ such Purgatives as tend to produce Relaxation. Flowers of Sulphur, Calomel where a few Grains will answer the Intention are the best we can employ. We now come to treat of

Particular Astringents.

The Operation of these you will understand from what has been said of their general Effects. I shall only take notice of such as have been recommended for particular purposes. Dr. Cullen has treated this Class of Medicines so amply that you will not be at a loss if I should even be guilty of some Omissions.

Pentaphyllum or Binquefoil is a simple and agreeable Astringent but a very weak one. Diascorides recommends a Decoction of Binquefoil for the Tooth Ache and other Astringents have been recommended for the same purpose. As it is but weak no great Effects are to be expected from it, but from its agreeableness it may be combined with other Astringents and prove serviceable in relaxed Habits of Body. It may be given in Infusion and used by the patient as a constant Drink. Tornesfort assures us that he cured a Fluv. Albus by the Use of the expressed Juice of the Binquefoil. This Disorder we have said before is frequently owing to a general or partial Relaxation and the Cure is to be attended by gentle Astringents which restore Tone to the relaxed Parts.

Roses are sometimes employed in Medicine. They are a weak astringent of an agreeable Odor and Taste. An Infusion of red Roses sweetened with Sugar will afford an excellent drink in putrid Fevers and Dysenteries much more agreeable than the nauseous Drinks generally employed. This Infusion may be also employed to prevent the Return of Hemorrhages.

Tormentilla is a very pure Astringent and for its Efficacy deserves to be placed at the Head of Vegetable Astringents. In Italy, where it grows plentifully, it is used for the tanning of Leather. It was employed for the Cure of Intermittents before the Peruvian Bark was discovered and its Virtues in this Case were known in the time of Hippocrates. It was likewise employed in all those Cases where

where the Peruvian Bark is now used with superior Efficacy. The Indians on this Continent use with the same intention a plant of the same Nature with the *Tormentilla* viz. the *Geum*. For the Cure of Intermittents the *Tormentilla* was generally combined with Bitters; for it is known that Astringents combined with Bitters were highly serviceable in this Disorder long before they discovered that Nature had formed this Combination in the Peruvian Bark. It has been employed Time immemorial for the Cure of Diarrhoeas and Dysenteries. It will no doubt be as proper as any other when ^{pure} Astringents are serviceable in these Cases. They are however not so frequently useful as is commonly supposed. We shall have a better Opportunity of inquiring into the Use of Astringents in these Cases hereafter and will therefore defer it till then. A Decoction of *Tormentilla* has been recommended to prevent Abortion. This nine times out of ten is owing to relaxation and irritation of the Uterus. A Person who has suffered Abortion from this Cause should immediately after Conception be put upon the Use of some gentle Astringent. The Metallic Astringents are not to be employed for by their Stimulus they will increase the impetus of the Blood as well as the Danger of Abortion: The Vegetable astringents are therefore to be preferred. The best method of exhibiting them in this Case is in Infusion in Cold Water. An Ounce of *Tormentilla* may be macerated for 24 hours in a Quart of Cold Water. Cold Water extracts the Virtues of Astringent Vegetables: This I know from some Experiments made by myself and some of my Contemporaries at Edinburgh. Five or Six of us formed ourselves into a private Society solely for the purposes of enquiring into the Virtues of Medicines and the best manner of preparing them. We among others tried Astringents and found that their Virtues were best extracted by Cold Infusions. We tried all the different Astringents we could lay our hands upon or that were used in Medicine and found the Result always the same. Infusion in Cold Water for 24 hours extracted their Virtues more powerfully than any other Menstruum. This I do not recollect to have seen taken Notice of by any Author. It is however a Fact to which I would advise you to pay a particular Attention in Case you employ any vegetable Astringent and cannot give it in Substance.

Rubia or *Madder* is a very weak Astringent and as such might pass unnoticed. It deserves however to be mentioned on account of another Property which

which it possesses. It has been found to colour the Bones of those Animals that feed upon it red. It appears that the Bones of Young Animals are sooner coloured than those of Old; that the Callus of a broken Bone is not tinged and that Tendons, Ligaments, Nerves and indeed every part but Bones are not coloured by it. M^r. Severet a famous Man-Midwife at Paris recommends Madder in the Cure of this Disease and assures us that he has employed it with Success. In this disease however Nature generally performs the Cure, and we trust in more to the Cold Bath to assist her than any other Remedy. I cannot imagine how a Substance that is said to render the Animals that feed upon it sluggish and heavy should have any Effect in this Disease. Madder has been recommended for the Cure of Jaundice but it possesses no Virtues by which it may effect a Cure in this Disorder. It has commonly been employed in this Disease with many other Substances merely from its Colour. We now know that the Jaundice is generally owing to Concretions in the Biliary Duct, by which the free passage of the Bile into the Duodenum is prevented, a regurgitation is produced and an Absorption of that fluid into the System takes place. The Disorder generally goes off suddenly from the Concretion passing into the Intestines of itself and being evacuated by Stool. The Medicine that happens to be given at this time is generally thought to perform a Cure. The Cure depends upon Solution or Evacuation of this Concretion. Hitherto we have discovered no Medicine that will dissolve it; we must therefore depend entirely upon Evacuation. This is to be attempted by Emollients, Emetics or Laxatives, by these we produce a Relaxation in the Parts and compress the Liver by which the expulsion of the Concretion into the Intestines is promoted. Dr. Schultze Professor of Medicine at Halle, recommends a Decoction of Madder in the Disorder called the Gutta rosacea or a red pimply Face.

Bistorta is a simple and strong Astringent. It has been recommended from time immemorial for the Tooth-Ache and for strengthening and fastening loose Teeth. Many other Astringents have been recommended for the same purpose, for which they will answer much better than the Dentifrice commonly made use of. As the Soundness of the Teeth depends in a good measure upon the Soundness and Purity of the Gums, there is no doubt but that any moderately Astringent Application, as washing the Mouth with a Decoction of *Bistorta* or even chewing the Root, by rendering the Gums firm and

and sound, and by promoting the Circulation in the smaller Vessels, will contribute to fix the Teeth firmly in their Sockets, give them a white Colour, and, if any thing will have this effect, preserve them from Decay.

Sapathum or Dock kind. Of this there are various Species and they all agree in Virtues. They have all been recommended in the Scurvy and in Cutaneous Troubles and Eruptions which were thought to be owing to a Scorbatic Habit of Body. The Itch has been thought to be owing to this habit of Body and the Dock has been employed for the Cure of it: Thus we find it is an Ingredient in the Unguentum Antipsooricum of the Edinburgh Dispensatory. We now know that the Itch is owing entirely to a particular Species of small Insects called by Linnaeus, *Acarus*. They are the same with those found in damaged Flour and other damaged Eatables. It is entirely cuticular and is to be cured by such Applications as come in immediate Contact with these Vermin. Common Dock bruised or infused in Milk or Cream for 24 hours and applied externally is a domestic Medicine frequently employed for the Cure of this Disease and I have been assured that it seldom fails of Success. Whether Ring Worms are owing to the same Cause with the Itch is doubtful. They may be as effectually cured by the expressed Juice of the Common Dock as any other Application.

Radix Britannica, one of the Dock kind has been much recommended in the Scurvy. who wrote a Treatise on the Virtues of this plant tells us that the Army of the Emperor were in great danger of being lost entirely in Holland by the Scurvy and that the greatest part recovered by the use of this Remedy. M^r Golden formerly Lieutenant General of New York gives us an Instance of a Gentleman afflicted with an ill conditioned Ulcer in his Throat for which he had taken the Advice of different Physicians to no purpose. He was at last perfectly cured by an Indian. He drank plentifully of an Infusion of the *Radix Britannica* and also used it as a gargle. It is very serviceable in all ill conditioned Ulcers and in those commonly called *Cancro* of the Legs and other parts of the Body. These Ulcers will often baffle the Efforts of the most Skillful Physicians. After they have been dismissed as incurable it often happens that some old Woman undertakes and even performs a Cure. They generally employ for this purpose the Common Dock which they apply externally as a Tomentation to the part and at the same time make the patient drink

drink plentifully of the Decoction of it. The Dock is possessed of a considerable Astringency with its Astringency. It acts not only by its Astringent Qualities giving tone to the parts but also by its Stimulus it excites the action of the Vessels in the part. It likewise increases the Evacuations, by Urine and principally by the Skin, by which the too great determination to the Uterus is taken off. The Use of it should be persisted in for a considerable time.

Filices or Fern kind were formerly much employed in Medicine but are now seldom used. The Filix Mas or the Male Fern was recommended by Dioscorides for the Cure of Worms in the Dose of ℥ss. I have accordingly in my different Courses of Lectures among the Anthelmintic Medicines enumerated the Fern, tho' from its being never employed I concluded it was possessed of no considerable Virtues. It has of late been again introduced into practice. Madame Meuffer had acquired great Reputation for a supposed Specific she possessed for the Cure of the Tape Worm. She at last obtained a premium from the King of France for the discovery of her Secret which was found to be the Root of the Male Fern in powder. Thus has this Medicine been again introduced into practice under favourable Circumstances, and it is probable that Madame Meuffer or the Person who discovered the Secret to her had learned it from some old neglected Herbal.

Capillus Veneris has been recommended on account of its peculiar Virtues and has been said to cure Consumptions; but it is now with propriety totally neglected.

Lichen pyxidatus, or Cup Moss grows upon all barren Rocks & Mountains in Europe and America. I have set it down on the Authority of Dr. Willis a Man of great practical Knowledge, but on account of his exploded Theories less studied than he deserves. He recommends it in the Whooping Cough a Disease in which he says a Physician seldom, an old Woman often succeeds. The Remedy which they generally make use of is the Cup Moss, which is a simple Astringent without either smell or taste, and on this account we can make the Child take more readily a sufficient Quantity of it than of the Peruvian Bark which is recommended in this Case by Dr. Burton. Other Astringents have been also recommended. The Chin Cough was probably first imported from Asia to Africa as the Small pox and Measles were. These Disorders it attacks only those Children and persons who have never had it.

it before. It was not known in France before the Year 1764. It cannot be owing to any Acrimony of the Humours as it would then have been known in Europe from the earliest Ages. The great Quantities of that yellow phlegm that is vomited and coughed up are to be considered rather as the Consequence than as the Cause of the Disorder. Besides it is often Epidemical and manifestly contagious. It has this in common with some other contagious Disorders that a person who at any time in his Life has been affected with it need never dread a second Attack. Of the Truth of this I was assured by a Gentleman who in the Course of 32 Years extensive practice never met with a person who had had the Disorder twice. A common Catarrh is indeed often mistaken for the Chin Cough but may be known from it by attending to the following History. The Chin Cough is sometimes attended with a Fever sometimes not, it comes on gradually and is worse every other day. It is at first dry, but after 10 or 12 days an Expectoration of a yellow phlegm ensues. After this the Disorder increases. In the Fit the Eyes swim in Tears, Blood often gushes from the Nose. It continues untill a Vomiting arises. If the Fit should go off without this Vomiting it will soon return with redoubled Violence. If the Child is seized with a Fit of Coughing after Dinner, it becomes black in the Face, falls to the Ground and is in Danger of immediate Suffocation unless a Vomiting is excited by putting the Finger down the Throat, or otherwise irritating the Uvula. A Child in this Disorder should never be left without an Attendant, for when the Fit seizes it, it falls down unless it can lay hold of a Table, Chair or something else to support it & may receive considerable Injury, and it is also in danger of Suffocation before any one can come to its Assistance.

As the Cause of this Disease is a contagious Miasma we have hitherto discovered nothing by which we can prevent or cure the Disorder: all we can do is to palliate it and to alleviate the Symptoms. When left to itself it will continue for 11 or 12 Weeks and sometimes even for 6 Months and in this case the Children are generally thrown into other Disorders that prove Fatal. Some are carried off by a Tyctic Fever others by a Vomiting or Spitting of Blood. The Disease is manifestly of a spasmodic, convulsive Nature. If the Child is plethoric or of a robust Habit of Body we may take away some Blood. Emetics may be given on those Days on which they find themselves better. In the beginning we may employ Musk, Camphor or Antispasmodics. When the Inflammatory Symptoms have gone off and the Disease

Disease has become regular we may give the Bark, or if the Child will not take a sufficient Quantity of this, Cup. Hosp or any other Vegetable Astringent may be used. If this Method does not succeed a Change of Air becomes absolutely necessary and it has happened that the Disease has been cured by changing the Air even for a worse one. All the unripe and naturally, acerb Fruits may be reckoned Astringents. The Virtues of all are nearly the same, we may therefore consult Plenty and Cheapness.

Pruna Sylvestris or Common Sloe is perhaps equal to any other. The best Method of preparing it is to make a Rob, like Elder Rob. In the Dysentery such Medicines may be employed with Advantage as are moderately astringent and at the same time correct Putrefaction. The Sloe proves highly serviceable in this disorder. By its Astringency it restores Tone to the Intestines. It likewise corrects and obviates the Tendency to putrefaction, and as all acerb Fruits are not so liable to a Fermentation as any others they will prove less laxative. The Sloe is on this account very useful. An Infusion of the Leaves of the Sloe has been recommended as a Gargle in spongy and relaxed Gums and to fix loose Teeth also in the Angina when it is owing to Relaxation.

Berberis. Berberry is a very excellent Fruit of a grateful Astringent Taste. It may be given either in Juice, Syrup or Jelly. It is particularly indicated in all Disorders owing to a putrescent or dissolved State of the Humours. Prosper Alpinus an Italian Physician famous for many Works, particularly for one "De præsag. enda Vita et Morte." was cured of a malignant Fever attended with a bilious Diarrhoea when his Life was despaired of, by a plentiful Use of the Syrup of (Berberis) Berberries. Simon Pauli another Physician was cured of a similar Disease by the same remedy. It is highly useful in all Fevers, in Dysenteries and in Cholera attended with Symptoms of Putrescency. Van Swieten from his own Experience recommends the inner Bark of the Treas a powerful Hydrogogue.

Succus Acaciae and *Hypocistis* are Substances now scarcely known to many Physicians even by Name. They are simple and pure Astringents & possess no Virtues to render them preferable to any others.

Serra

Terra Japonica. This is very improperly called an Earth. It is a Vegetable inspissated Juice prepared from the Fruit of the *Areca* palm Tree. It is prepared by boiling the Fruit in Water and adding some Lime to it, which gives it the red Colour. The Liquor is poured off and the Faces or those parts which fall to the Bottom are dried and kept for use. Its principal Use is in Scurvy and resolution of the Gums. It is chewed by the French Gentry to give them an agreeable Breath. It may be used in Diarrhoeas and Dysenteries. It is a powerful Astringent of no Smell, and rather of an agreeable Taste. As to the Dose, it may be given in the Quantity of \mathfrak{zj} or \mathfrak{zss} in Substances or Solution.

Sanguis Draconis has at all times been considered as a powerful Astringent and has been thought to be very serviceable in checking Hemorrhages probably from its resembling Blood in Colour. It is possessed of no Astringency, and is totally insoluble in the Fluids of our System and therefore does not deserve to be considered as a Medicine. The only use I know of it, is to form Alum into Pills in the Manner of Pelletiers as I mentioned before.

Hypericum was formerly much esteemed in Medicine and still continues in Repute with the Vulgar, but is now totally banished from our Prescriptions. From its Taste it appears to be an Astringent. It contains a large Quantity of a subtle essential Oil in small Cells like those of the Kind of Oranges &c. The plant is said to be a powerful Diuretic. The Oil is said to have proved useful in Epileptic and Maniac Cases: I must confess I cannot account for its Operation in these Cases.

Lysimachia. De Haen assures us that Van Swieten and himself experienced the good Effects of this in the Dysentery in the Dose of \mathfrak{zj} morning and Evening. He says it cured a recent Dysentery in 3 days and an Old one in three Weeks. He used it principally in the Chronic Dysentery. With regard to the Use of Astringents in Dysenteries Physicians are not agreed. This difference of Opinion seems to have arisen from their confounding the Chronic and Acute Dysenteries together, which are very different Disorders. The Acute Dysentery is always attended with a Fever; the Chronic is not, tho sometimes there is a symptomatic Fever, but this is rarely the case. The acute generally lasts not longer than a Week or a fortnight and sometimes not so long. It is attended with great Pain and evident Signs of putrescency. The two Disorders are to be treated in a very different

different Manner. The Acute is to be considered as a *Febri introversa* as Sydenham terms it; and is to be treated as a putrid, malignant Fever by Anti-septics, diluent and acid Drinks, gentle Laxatives and Anodynes at Night. There is no Danger in giving Anodynes in this Disorder which greatly relieve the Pain and Tenesmus and cause a gentle Evacuation by the Skin which is of great service in this Disease. To increase its diaphoretic Virtues we may combine the Anodyne with *Specac.* or *Tart. Emetic.* for we shall find hereafter that Emetics combined with Opiates are the most powerful Sudorifics. I have seen Dysenteries cured by no other Medicines than an Anodyne at Night & some Laxative in the Morning. In the Chronic Dysentery we should likewise endeavour to produce a determination of the Fluids to the Skin for without this all other Attempts will be in vain. In this Anodynes are hurtful as they weaken and relax the Intestines already too much weakened. Gentle Astringents combined with gentle purgatives are very serviceable by restoring the Tone of the Intestines and evacuating the morbid Matter. *Specacuanha* alone in small Doses has been found of great Service. It has combined with its Emetic Qualities a manifest Astringency. In the acute Dysentery Astringents are hurtful in the Chronic they are serviceable. In this manner we may in some measure reconcile the different and jarring Opinions of Physicians on this Head.

Plantago is a very weak Astringent. In Decoction the *Plantago* has been employed in Hemorrhages and Dr. Black formerly a Physician of Eminence at Edinburgh assures us that he has seen Hemorrhages suppressed by this which would not yield to seemingly more powerful Medicines. An Infusion of the Leaves has been recommended in the *Fluor Albus*. Celsus recommends a Decoction of the Leaves for Consumptions. Dr. Schultze of Halle confirms this Opinion of Celsus. Mr. Boyle tells us he has seen Consumptions cured by two spoonfuls of the expressed Juice of the plantain taken every Morning for two Months. I know not to what property to ascribe its Effects in this Case. In this Country the plantain is used for the Bite of the Rattle Snake and other Serpents. With regard to the Bite of the serpent, from all the Information I could get it appears that if the Bite is inflicted immediately into a Vein so that the Poison is conveyed directly into the Blood there are no Hopes of a Cure. But if it is inflicted into a muscular part so that it must be taken up by the Absorbents before it can be mixed

mixed with the Blood there is no great danger and warm Fomentations of all kinds and even Warm Water alone will answer equally well. Drinking warm Liquors of all kinds by keeping up a perspiration will also prove serviceable. The Sentiments of M^r. Carver, who remained a long time among the Indians, on this Head are similar to those I have given you. The Danger consists entirely in the mixture of the Blood with the Venom. The poison of Serpents taken into the Stomach produces no fatal Effects. M. Rhedi tells us that a number of Gentlemen had met to make some Experiments on the Venom of the Viper and had for this purpose collected a quantity of it in a Glass. To the amazement of the Company, one of them drank off this Poison; but they were much more amazed when they found he suffered no Inconvenience from it. The people of Asia and Africa whenever they are bitten by a Serpent, apply immediately to some one to suck the Wound, and the person who does this Office never feels any Inconvenience from it unless there is an Ulcer in the Mouth by which the poison may be readily conveyed into the Blood.

Polygonatum. The Flowers, Leaves, and Berries of this are of a very acid and even poisonous Nature. The Root is remarkably mucilaginous with Astringency. The Root has been used with success in Hemorrhoidal swellings and Bleedings. The Dose is ℥ss boiled in a Pint of Milk untill one half is consumed and taken at once in the Evening. With regard to the Use of Astringents in Hemorrhoidal Cases; when they are critical Astringents are undoubtedly not proper. Some have even supposed that the Hemorrhoids were a critical Evacuation answering the same End in Men as the Menses in Women. This is not however the Case for we see as many, if not more Women afflicted with the Piles than Men; and some Women are even troubled with the Piles during the Flow of the Menses. When they are critical or become habitual to the System they are to be considered as a necessary Evil. But at their first Appearance they are certainly morbid. They are frequently occasioned by a habit of Costiveness by which the free return of the Blood to the Heart being prevented it is poured out into the Cellular Membrane forming Ecchymoses which are kept up by Scurvy. Here, after we have removed the Costiveness Astringents will be very proper. When the Disease is become habitual it will be dangerous to check it, and therefore Astringents during or immediately before the Evacuation

Evacuation will be hurtful; but even here I can see no great Inconvenience arising from a moderate Use of Astringents after the discharge has ceased to prevent its return.

Semper vivum or House leek is a moderate Astringent combined with a Mucilaginous Quality. Boerhaave says that of the expressed Juice drank at once will frequently cure a Dysentery. Boyle recommends it mixed with Honey in the Aphthæ in Children. It is said to be very useful in Inflammations of the Mouth and Fauces. A Poultice of the Leaves is in great repute with the Vulgar for Burns and Scalds. The Expressed Juice in the Phil. Trans. of Boerhaave is recommended to take Films off from the Eye. A Poultice of the Leaves is used for Corns. Acid Applications of all kinds are improper to Corns. We know nothing that will effect a Cure but such Applications as by mollifying the neighbouring parts will dispose the Corn to fall out.

Nettles when young are employed in Food. A strong Decoction of these is said to cure the Piles. The Infusion of the Leaves is employed in Consumptions. The Juice has been recommended in Hemoptoe. From their remarkable property of exciting Inflammation in any part upon which they are struck, they have been employed in Torpor and Paralytic Affections of the Limbs. Here they act by exciting the Animal Fibres into action and by producing a greater Derivation of the Blood and nervous Influence into the part. This is termed Urtication. When we examine the plant carefully we find that it is covered with little sharp points which when struck against any Object, break and a Fluid is at the same time poured out into the Wound which produces the Inflammation.

Uva Ursi is a Species of *Arbutus*. This has of late been much recommended in calculous Concretions and other Disorders of the Kidneys and Bladder. It was at first recommended by *Sinncus*. After him several Trials were made with it by *De Haen* in the public Hospital of Vienna, an Account of which he has given in his "Ratio Medendi", to which I refer you. *De Haen* found that it does not dissolve the Stone, but mitigates the pain arising from it and enables the patient to retain his Urine and changes the bad state of this Fluid. Frequently when it was fetid, purulent, acid and so highly alkaliescent as to change the Syrup of Violets green and to effervesce with acids, by the Use of this Remedy it was brought back to its natural State and made to deposit a healthy Sediment. He

He says also that it cured all Suppurations of the Urinary Passages, whether of the Kidneys, Ureters, Bladder, Urethra, Scrotum or perineum, provided they were not Venereal; for in this Case nothing but Mercury will succeed. It relieves the pain attending the Stone, tho' it appears by sounding that it is not changed either in Size or Shape. It is often serviceable where Lithotomy cannot be performed. De Haen gives us the Case of a Gentleman of 80 Years of Age afflicted with the Stone who was entirely relieved of all the Symptoms by the Use of this Remedy. He likewise gives a Case where the person was cut, but the Stone could not be extracted: by the use of the Uva Ursi the patient's Life was rendered comfortable. The Method in which De Haen exhibited this Medicine you will see from the following Case. A Lad of about 11 Years of Age was brought into the Hospital at Vienna, who for 4 Years had been afflicted with intense pain in making Water, and during that time had voided two Stones of the Size of a pea. Upon sounding, a Calculus was evidently felt. He was put upon the Use of the Uva Ursi of which he took ʒss morning & evening with an Anodyne at Night. In four days his Symptoms were greatly relieved & in a month he was discharged quite free from pain. He continued well for several Months, but neglecting the Use of his Medicine and using improper Diet, he had a return of his Complaints and was brought into the Hospital a second time; here while every thing was preparing to perform the Operation, he took ʒss of the Uva Ursi three times a day. In three days the pains were entirely gone off. Upon sounding him the Calculus was evidently heard and felt. In a fortnight he was again discharged. He returned into the Hospital a third time, and recourse was had to the Uva Ursi, but as his pains were now more violent than they had ever been before Linseed Oil was injected into his Bladder daily. After some days when his pains were abated the Linseed Oil was omitted and the Uva Ursi in powder was given him daily. The State of the Urine was always changed upon using the Uva Ursi. I am induced to believe that the Symptoms attending the Stone are not owing to the size, weight, Shape &c of the Stone but depend entirely on the State of the Urine. We frequently find persons afflicted with all the Symptoms of the Stone when no Calculus can be found in the Kidneys or Bladder, and on the contrary, we often upon Dissection find Calculi of considerable Magnitude in persons who during their Lifetime felt no Inconvenience. If the pain depended entirely upon the Stone, why should there in the latter Case be no Inconvenience

nience felt, or whence in the former do the pains arise? When the Urine is fetid purulent acid and alkaline, the Uva Ursi is often found very useful by bringing it back to its natural State. It acts probably by giving tone to the Secretory Organs and enabling them to secrete a Healthy Fluid. In all Ages have Astringents been recommended for the cure of the Stone, and it is probable that Lime Water acts more by its Astringency than by any power of dissolving the Stone. This appears evident in Mr. Walspole, who published an Account of his own Case. He was entirely freed from pain by the Use of the Lime Water. Upon Dissection after his Death, a considerable Calculus was found in his Bladder. I am well aware that it is said by some persons, that Lime Water gives to the Urine of those who drink it a power of dissolving the Stone out of the Body. But the Urine of Calculous Patients will also do the same, even tho' they do not drink Lime Water, and yet the Stone is not found dissolved; and we are not rashly to conclude from Experiments made out of the Body that the same Effects will take place in the Body. From some Experiments lately made at Edinburgh it appears that when Uva Ursi was added to Urine in which was a Calculus, the Calculus was somewhat increased, but when the Acid of Vitriol was added, the Stone was considerably diminished. I have seen the Uva Ursi tried in 3 Cases. The first was a Child afflicted with a Stone, the Uva Ursi was advised but was used without Success. The Stone was afterwards extracted by Lithotomy. The second was of a Gentleman 80 Years of Age who had been troubled with several Nephritic Paroxysms, whether from a Calculus was not certain. As he had no desire to be convinced of so disagreeable a Truth, the only method of ascertaining this, Sounding, was not employed. He was advised to use the Uva Ursi in a strong Infusion. In 24 hours after he began the Use of the Uva Ursi his pains were considerably abated and he was convinced that it was of great Service to him. It did not however entirely free him from his Complaint, but he continued subject to repeated Attacks during the short remainder of his Life. The third Case was of a Gentleman of 24 Years of Age who had been troubled with nephritic paroxysms. The Uva Ursi was employed, but instead of mitigating it rather increased his pains. Thus in two Cases out of three this medicine proved quite ineffectual. Even De Haen's Case is ambiguous, for we find that the Disorder was relieved soon after the patient came into the Hospital; a very strict Regimen, no doubt, was observed and this certainly might contribute as much to the Relief which was afforded as the Medicine.

Cortez

Cortex Simarouba is the Bark of a Tree growing in Guiana, brought from thence to Europe in 1715. It was employed in France in 1718 for the Cure of the Dysentery, which was epidemic in that Kingdom. It excites a Nausea, Vomiting and Diaphoresis. It is of use principally in Chronic Dysenteries. The Dose is $\mathfrak{z}\text{ij}$ boiled in a Quart of Water untill $\frac{2}{3}$ is consumed. The remainder is to be divided into four Doses, one of which is to be taken every two or three Hours. The Dose in powder is $\mathfrak{z}\text{ss}$. It is possessed of no Astringency, but its Virtues are owing entirely to its sudorific Quality, by which it restores the Determination of the Blood to the Skin which we know to be of great Consequence in the Cure of the Dysentery. I have used it several times, particularly in one Case in the Pennsylvania Hospital. A Man had been afflicted with the Dysentery several Months and different Medicines had been prescribed by the different Physicians of that Institution to no Purpose. I at last prescribed the Simarouba and in three or four Weeks he was perfectly relieved of his Disorder.

Fungus Melitensis is a Substance not known in our Shops. Linnaeus has written a Treatise upon it, in which he recommends it in Hemorrhages of all kinds, particularly those of the Uterus. It grows in the Island of Malta where a constant Guard is kept over it, lest some person more attentive to his own than the public Good should engross or destroy it. It was thought peculiar to this Island, but it has been found in Jamaica and Dr. Brown mentions it in his Natural History of that Island. It is recommended in all kinds of Hemorrhages from $\mathfrak{z}\text{j}$ to $\mathfrak{z}\text{ij}$ for a Dose to be repeated at proper Intervals untill the Effect is produced.

I have now finished the Consideration of particular Astringents and shall in the next place mention some general Terms comprehending those Substances which tho' not really Astringents may occasionally prove such.

Acids applied to the Tongue contract and corrugate the Parts; they deprive the Lips of their red Colour. The Virtues of the fixible Acids are similar and they differ only in the degree of Concentration. There is a difference between the Vegetable and Fixible Acids. The Vegetable Acids are liable to ferment in the *prima Vicia* and to have their Acid Nature changed before they enter the Blood. The Fixible Acids being incapable of Fermentation and even resisting

resisting that process are (incapable of Change) not liable to this Change. They stimulate the Organs of Secretion by which they produce more copious excretions. This the Vegetable Acids cannot do unless they are given in a very large quantity. There is also a difference between the Vegetable Acids. The Native have both the Vinous, and acetous Fermentation to undergo, and are therefore more liable to be changed than the Fermented. The Fossil Acids are very proper in Hemorrhages especially when attended with Fever (where the Fossil Astringents from their stimulus would prove hurtful) being possessed of a Sedative Virtue, by which they diminish the Impetus of the Fluids and at the same time contract the Solids.

Austere Wines act from their Acerbity. They are liable to the same Objections with the native Vegetable Acids, as they have generally undergone the Vinous Fermentation but imperfectly and have still the Acetous to go thro'. By stewing them their Acerbity is removed and they are rendered less liable to ferment. They are however rather to be considered as affording a convenient Vehicle for Astringent Medicines than acting as such. When a Choice of Wines is to be made the Austere Wines are in some Cases to be preferred. Thus in the Dysentery where we want a weak antiseptic Fluid, the red Wines are generally preferred, and with Propriety; but they do not here act as Astringents for when given in large Quantities they generally prove laxative.

Bitters when Evacuations depend on Relaxation by giving a temporary Tone to the Parts may act as Astringents.

Sedatives may act as Astringents in stopping Evacuations, by diminishing the Impetus of the Blood and by taking off Spasm and Irritation when they are owing to these Causes.

Balsamics have been reckoned Astringents, from their Use in increasing Discharges of the Urinary Passages as Gleets, Gonorrhoeas &c. When given in large Doses they prove Laxative, and when we come to treat of this Class of Medicines we shall find that they cannot with the least Propriety be considered as Astringents. I conceive, in stopping Gleets &c. they act much in the same manner as Cantharides, by exciting an Inflammation in the Urinary Passages to which they have a natural Tendency, and thus producing a Constriction of the relaxed Glands.

Exsiccants

Exsiccants have been confounded with *Astringents*. They are not however by any Means *Astringent*. By the Term *Exsiccants*, we mean such Substances as absorb Moisture, for this purpose every dry, insipid powder may be employed. Powders of Chalk, Boles, Clays are generally used. Oatmeal perhaps will answer much better than any of them. *Exsiccants* may be employed when the Perspiration is so increased as to become disagreeable. Here it would be improper and even dangerous to check the Evacuation by *Astringents*, but *Exsiccants* will remove the disagreeableness without obstructing the Perspiration. They are also employed in Erysipela an Affection of the Rete Mucosum. Here they do not act as *Astringents* but by absorbing the Acria Mucosa, which would otherwise cause the Disease to spread over the neighbouring parts. When the Disorder is confined to the Extremities there is not much danger to be apprehended; but when it attacks the Head, Face or Breast it is oftentimes highly dangerous. In it *Repellants* are not to be used, lest they should throw the Disease on some of the Viscera and cause it to prove fatal. We may employ *Exsiccants* with Advantage to absorb the Moisture and Oatmeal is to be preferred, as it is not so apt to form crusts as the powders of Chalk, Boles &c. It should be applied upon a cloth. We have now finished the Consideration of *Astringents* and will in the next place take a short review of what has been said on that subject in the preceding Lectures.

We defined *Astringents* to be such Substances as increase the Cohesion of the Fibres of our Bodies. We observed that their principal action was upon the Nervous System, by which their Effects were much sooner produced & much farther extended than could possibly happen by means of the Circulation. We found that *Astringents* were indicated: 1st In laxity of the simple Solids, if this may be called a Disease: this and Rigidity are generally Constitutional and out of the reach of Medicines, tho' Diet and Exercise may have some Influence in changing them. The greatest stress was laid upon Laxity and Rigidity when every thing was attempted to be explained on Mathematical Principles. Boerhaave improved the Theory, and it continued a long time in Vogue. The Nervous System which may be called the Soul of the Machine was entirely neglected. Since we have begun to study the Laws

Laws of the Animal Economy with Accuracy we find that Laxity and Rigidity, are of very little consequence and may be entirely neglected. The only morbid Cases of Laxity which occurs to me at present are 1st From the too long continued Applications of Emollients to any Part. 2nd In the Rickets where the Bones are found to be dissolved. 3rd Where the Parts have been overstretched and the Tone destroyed. This is illustrated in Catgut and other Elastic Substances, which being extended beyond their Elasticity will not contract to their former length when let go. 4th In Debility of the moving Fibres. This often occurs and may be brought on as well in a moment as in a Month or Year. 5. In increased action of the Solids when owing to Irritability or Mobility of the System. 6 In increased Evacuations of Blood. The Causes of these may be referred under three heads. 1st Debility and Relaxation. 2nd Mobility and Irritation. 3rd Increased Action of the Heart and Arteries. In the two former Cases Astringents are proper in the last hurtful. We should always employ the least stimulating Astringents in Hemorrhages, as Alum in Substance or Alum Whey, which will often prove effectual when no other Remedy will. When we use Astringents to check Hemorrhages that are dangerous we should employ the strong fixible Astringents, when to prevent the return of Hemorrhages the weak Vegetable Astringents are most proper in small Doses. 7. In Ulcers when we wish to bring on that gradual Degree of Inflammation which is necessary for the formation of good pus. From their Virtues in healing Wounds they were termed Vulnerary by the Antients as they thought them possessed of a specific property. 8. In Inflammation; This is often produced by Debility as well as strength of the Vessels. In the former Case the Vessels not propelling the Blood with sufficient Vigour it stagnates and produces Inflammation. In the latter Case the Blood is propelled into Vessels not naturally accommodated to receive it. Inflammation produced in these two different Methods is to be treated in a very opposite Manner. For instance, Inflammation in the Eyes is to be treated in a very different Manner in the Young and vigorous & the Old and debilitated. In the latter Astringents are very proper, in the former they are hurtful. Inflammation in the Young and vigorous tends to suppurate, in the Old to Gangrene. This gives us the Reason why the Peripneumony is generally fatal in Old people & requires a different treatment from that of Young people.

As the stopping of Hemorrhages bears so considerable a Share in the Use of Astringents we shall here treat of Hemorrhages.

By the Term Hemorrhage we mean an Evacuation of pure Blood from the Vessels of the living Body. Dr. Stahl and his Followers, whom I mentioned formerly as the best Writers on this subject have very properly divided Hemorrhages into the active and passive. The passive are always owing to some external Cause producing a Rupture or laceration of the Vessels and more properly comes under the Notice of Surgery. The Active are produced without any external Cause solely from the increased Action of the Vessels. This increased Action is owing to some internal Cause. The Active are divided into the Ordinary and Extraordinary. The Ordinary are when Blood flows from a part usually subject to Hemorrhages, as the Nose, Lungs, Uterus &c. The Extraordinary when Blood flows from a part from which it does not usually issue, as the internal Angle of the Eye, Tip of the Finger and such other unusual places. The Active are also divided into the natural and preternatural. The Active, Ordinary and natural occur only in Females and are absolutely necessary to their enjoying a sound State of Health. These are the Menses and Lochiae which are never called Hemorrhages unless they are immoderate. The Active, Ordinary, preternatural are always morbid Affections and deserve accurate Attention. Hemorrhages acquire different Names according to the parts from which they issue. Thus it is called Hemoptoe when it issues from the Lungs; Vomitus Cruentus or Hamatemesis when from the Stomach; Hamorrhoeis from the Hamorrhoidal Vessels; Mictus Cruentus or Hamaturia from the Urinary Passages; and Menorrhagia Gravidarum when from the Uterus during pregnancy.

Persons of a sanguineous Temperament, which is known by a florid Countenance, smooth Skin, a shining Redness of the Lips and Corners of the Eyes & pale Hair generally inclining to red, are very subject to Hemorrhages, especially from the Lungs, and hence they frequently die of Consumptions. Persons of a Sanguineous, Melancholic Temperament, which is known by a paleness of the Countenance, fullness and Distension of the Veins on the Surface of the Body and Hair inclining to Black, are also subject to Hemorrhages. Persons likewise who lead an indolent Life are frequently troubled with them. Such persons also as are troubled with watery Eruptions and Eruptions on the Head when young are

are often sieged with Hemorrhages when Old. Particular Seasons of the Year contribute to Hemorrhages. They are most frequent about the Vernal and Autumnal Equinoxes. Hemorrhages happen at every period of Life: this is an Observation as old as Hippocrates. Celsus and many others since him confirm it. They flow however from different parts at different times of Life, and even the Sex makes some Difference. Thus Boys are more subject than Girls to bleeding at the Nose, which seldom appears before the 12th or 13th Year. Haemoptoe more frequently attacks Men than Women. It generally appears from the 18th to the 35th Year. It seldom appears after the 35th Year, and a person who has passed this period of his Life without being attacked with a Spitting of Blood or any Symptoms of Consumption may be thought safe from these Disorders. It is true a Spitting of Blood and Consumption do make their first Appearance after this period sometimes; but then it is owing to some extraordinary Circumstance. Haematemesis or Vomiting of Blood more frequently occurs in Women. It sometimes arises from a Suppression of the Menses. This however is not always the Case, for it sometimes appears when there is no Obstruction of the Menses, and even during the Time they are flowing. Pregnant Women are sometimes seized with a Vomiting of Blood. The Haemorrhoids or Piles seldom appear before the first Vigour of the Body is gone off. They in general make their first appearance not till after the 36th Year. As a Melancholic Temperament conduces to Hemorrhages and frequently brings on the Piles, Men, being in general of a more serious turn of Mind than Women, are more liable to this Evacuation. Women are sometimes subject to the Piles during pregnancy. This is owing to the Gravid Uterus compressing the Abdominal Veins and preventing the free return of Blood to the Heart thro' them. Of all the active Hemorrhages, the Mictus Cruentus or Haematuria is least frequent. It never attacks Women and seldom Men before the 36th Year or Grand Climacteric. When it is owing to external Violence as Calculi in the Urinary Passages it is to be considered as a passive Hemorrhage. Women are sometimes during pregnancy, subject to a Hemorrhage from the Uterus. This is called Menorrhagia Gravidarum which we shall consider more particularly here after.

A Hemorrhage sometimes comes on suddenly, but in general it is preceded by the following Symptoms. — There is a Sense of Fullness
Tension

Tension and sometimes pain in the part from which the Hemorrhage is to issue, a diminution of the Natural Excretions hence Costiveness, pale Limpid Urine, a dry Skin with evident Signs of diminished Perspiration, and if the person has any Ulcers they become pallid and discharge little or no pus. A Lapsitude and Aversion to Motion, a Coldness of the Extremities, Wind and Borborygmi in the Intestines, frightful Dreams during Sleep, a great Anxiety, a Sense of Chillness or what is commonly called Horripilation, Pains in the Back and Loins and a dimness of Sight. The Countenance becomes pale, there is an increase of Thirst and Heat and a quick, strong pulse. The Tension is increased untill the Hemorrhage breaks forth. Upon the Cessation of the Hemorrhage the Symptoms remit. Hemorrhages frequently become periodical, and return sometimes after an Interval of a Day, sometimes of a Month, sometimes of a Year, and there are Instances of their returning even at longer periods. The predisposing Causes of Hemorrhages are various. As Hemorrhages sometimes come on suddenly and at other times ^{refer} are preceded by the Symptoms above enumerated, we may in general the antecedent Causes to 2 heads: 1st Such Things as suddenly increase the Circulation as violent bodily Exercise, strong Impressions upon the Mind or upon the Organs of Sense immediately communicating with the Sensorium Commune as great Light, great Noise; Violent Passions of the Mind as Anger; external Heat, the hot Sit of a Fever; all these have been known to bring on Hemorrhages. 2nd A topical Plethora; that this precedes almost every Hemorrhage is known from the Tension and Fullness. It is owing to a Congestion of the Vessels, and this may be brought on by a general Plethora of the System.

The Causes of general Plethora may be referred to three Heads. 1st it is owing to an increase of Nourishment while the Evacuations continue the same. In this Case that Equilibrium which ought to be kept up between what is taken in and what is discharged from the Body is destroyed. For more is taken in than is carried off. To this head we may refer an indolent Life accompanied with a large Quantity of Animal Food. Secondly. Plethora is produced by a Diminution of the Excretions while the

the Nourishment is the same. Under the former head the Quantity, here the Quality of the Aliment is rather to be considered. Thus Animal Food being less perspirable will be ^{more} apt to occasion plethora than the same Quantity of Vegetable Food. Oysters and Fish of all kinds being least Alkalescent and least perspirable will most readily occasion it. The Flesh of Young Animals also will be more apt to produce plethora than that of full grown. A Want of Exercise may also be referred under this Head, for without this the Fluids are not driven on with sufficient Strength and hence Congestions are formed in the Vessels and the perspiration checked. The Moisture of the Atmosphere checking the perspiration may likewise be considered as a Cause under this Head.

Thirdly. A Suppression of the usual Evacuations. To this may be referred an advanced period of Life; for then in Women we find the Menses are suppressed and in Men the Evacuation by the Skin. A plethora is often produced by a Diminution of the Body, as the loss of a Limb, for in this case the Blood that was formerly carried to the Part is carried into others. A partial plethora may be produced independant of a general plethora from an increased Distribution of the Fluids to a particular Part. This may be owing to various Causes. 1st It may depend upon the Growth of the Body. Thus in Young persons before puberty we observe Hemorrhages most frequently from the Nose arising from the Head ceasing to grow while the same quantity of Blood is still recieved into it. When they approach to their Acme, as the Vessels give more resistance to the Blood a greater Quantity will be carried to the Lungs which are least able to make resistance and hence Hemoptoe is more common at this period. In the Young the Arteries, in the Old the Venous plethora takes place. This arises from the different Strength of the Vessels at different periods of Life. Dr. Winttingham has observed, that in Young Animals, the Arteries are weak and lax, but when the Animal grows older they become more rigid and are endued with greater Strength and hence propel the Fluids into the Veins. Hence it is that Old people are more subject to the piles. In Old people the Discharge by the Skin is in a manner totally suppressed and the Fluids are carried in greater Quantities to the Kidneys, hence the Discharge by Urine is increased in Old people and

and they are frequently afflicted with a Hematuria. 2.nd The Situation and Conformation of the Body may occasion an increased Distribution of the fluids to a particular part. Thus a wrong Conformation of the Thorax which is known by high Shoulders, a long thin Neck, a flat and narrow Chest is often attended with Congestions in the Lungs and hence Haemoptoe is very frequently found in persons of this Shape. Here the Lungs are smaller than they ought to be and the same Quantity of fluids is carried thro' them in a given time as thro' all the rest of the Body, Congestions will be readily formed. A sedentary Life has been known to bring on the piles. Here the Circulation thro' the Veins of the Abdomen is not carried on with sufficient Strength and hence Congestions are formed about the Anus. A Debility of a particular part will tend very much to produce Congestions in that part and consequent Haemorrhages, for as the Vessels are weak and lax they will not be able to resist the Impetus of the fluids, and a greater Quantity of these will be carried into it. Hoffman very properly reckons an Attonia of the Rectum among the Occasional Causes of the Piles. 3.rd Local or partial Stimuli derive a greater Quantity of fluids into the part to which they are applied than it naturally receives. Under this Head Calculi in the Urinary Passages may be mentioned. These we have already said produce Haematuria, by lacerating the Vessels, but they also produce this discharge only by deriving a greater Quantity of fluids into these parts. It is of some use to distinguish between these two Cases, which may in general be done by attending to the Symptoms preceeding the Haemorrhage. In the latter Case hardened Faeces in the Rectum acting as a Stimulus often produce the Piles. Haemorrhages from the Uterus are sometimes occasioned after Birth, by part of the Placenta remaining and acting as a Stimulus. 4.th Particular Substances taken into the Body, which have a particular tendency to any parts or Viscera, will produce a Congestion in that part and consequent Haemorrhage. Thus Aloetics frequently produce the piles. Strong acrid Diuretics as Turpentine and Cantharides often bring on bloody/

bloody Urine and a discharge of Blood from the Uterus during Pregnancy and consequent Abortion. This they do merely by Irritation in the Urinary passages being communicated to the neighbouring Uterus and not from any specific Power as is commonly supposed. Emetics will often produce a Vomiting of Blood when strong and frequently repeated. 5^{thly} The increased Action of any particular part will produce a greater Determination of Blood to that part. Thus we find Hemoptoe is frequently produced after Violent Exertions of the Lungs in Declaiming, singing, &c. Women who copulate too freely with Men are often Afflicted with Hematuria. 6^{thly} Suppressions of the usual Evacuations will produce a greater Determination of Fluids to particular Parts. Hemorrhages are frequently produced by checking the perspiration by astringent Applications and from suppressing Issues. It has been commonly thought that the Hemorrhage in this Case was owing to the Fluids which were formerly evacuated at the Issue for Instance being carried to some other part and producing a Congestion there, but we often find the Quantity of Matter discharged by an Issue in 24 hours is so small that it can have little Effect in this Way. We must therefore account for it from the Equilibrium which is so necessary to our Body being destroyed by the Suppression of the Evacuation. 7^{thly} Whatever prevents the free Return of the Blood thro' the Veins of the part may cause Congestion by producing an increased Determination of Fluids to some particular part. Thus hardened Faeces in the Rectum compressing the Veins often produce the Piles. In this way we account for the Hemorrhages in different Parts arising from a schirrous Spleen or Liver. 8^{thly} Infarctions of the Viscera by preventing the same quantity of Fluids to be carried to the parts affected as are naturally carried there, will occasion Regurgitation, the Equilibrium in the Distribution of the Fluids will be destroyed and hence an increased Distribution to some particular part will be occasioned. 9^{thly} and lastly, Spasmodic Constriction of any part particularly of the Extremities will often produce an increased Determination of Fluids to a particular part. Whatever excites Spasm therefore will may occasion Hemorrhages as Cold and Moisture of the Atmosphere. Dis-

Distressing

Distressing Sensations of the Mind which we know excite Spasm, as Sorrow, Grief, Fear &c often occasion the piles.

Habit has a great Share in continuing Hemorrhages. How this happens is to us a Mystery, but we know that Habit has a great Influence upon many Disorders as well as these.

We now come to the Proximate Cause of Hemorrhages. A Hemorrhage is produced by a rupture of Vessels or their Anastomoses. This Rupture may be occasioned: 1st by an increased Circulation. 2nd by a topical plethora. How a topical plethora can produce the symptoms preceeding Hemorrhage is difficult to determine. All that I can advance upon this Head is but a Conjecture. It is of no great Consequence whether it is true or false as it does not interfere with Facts and it will serve at least to shew that when Physicians agree in Facts their Speculations are at least harmless. The finer a Web is spun, the more easily is it broken, and there is this to be said in favour of subtle Theories, that many do not understand them. When Nature perceives any part to be oppressed with an over proportion of Fluids, she will endeavour to remedy this and to remove it, and if she fails in her attempt the Hemorrhage will certainly ensue. We now are to say a few words on the Cure of Hemorrhages.

This must in general be adapted to the Cause producing the Hemorrhage. Independent of the Cause, the Cure of Hemorrhages turns upon three points or Indications. We are

1st To diminish the Action of the Heart and Arteries and to divert the Blood from the part. The first part of this Indication is answered by the Antiphlogistic method, which consists in Bleeding, gentle Laxatives, cooling Drinks, a thin spare Diet, Cold Air, an Absence from Light and Noise and from every thing which excites the Mind into action. For diverting the Blood from the part we may make use of Diaphoretics combined with Opium. Draughts of Cold Water, or Water impregnated with Acids, Glysters of pure Cold Water, Blesters, Cupping, Milk Warm Pediluvia will all tend to divert the Blood from the part.

2nd To give Constriction to the ruptured Vessels, and

3rd To prevent the Return of the Hemorrhage.

For both these purposes Astringents are commonly employed. These as we said before are either Tossile or Vegetable. As the Tossile are more sudden and strong in their Operation than the Vegetable, they are chiefly to be relied upon in any Emergency. Those most commonly used are the preparations of Lead, Iron and Alum. Alum Whey, Dr Whyte found would stop Hemorrhages of the Uterus when they would yield to no other Remedy. When a Hemorrhage is owing to the increased Action of the Heart and Arteries, Astringents should not be employed untill their Action is diminished. When it is owing to Relaxation and Irritation, Astringents are properly employed. When it is owing to Irritation or Irritability, we should combine Opium with our Astringents. Cold may act as an Astringent in external topical Applications. Thus Cloth dipped in Cold Water or Vinegar and applied to the Forehead or private parts will often stop a Hemorrhage from the Nose. Astringents are also serviceable in external Applications. Thus an Infusion of Oak Bark or of peruvian Bark is employed with Advantage to check an immoderate discharge of the Piles. To prevent the Return of Hemorrhages Patients should carefully avoid the occasional Causes. Bleeding has been recommended but it should always be in small Quantities. Topical Bleeding may be very serviceable. To prevent the Return we should also use the weaker vegetable astringents in small Doses.

The following Articles come under the Class of Astringents, but appear to have been omitted in their proper place. (50)

Cortex Granatorum & Querci are strong and simple Astringents. As the Oak Bark is strong and at the same time easily procured we may use it in external Applications as in the Procidentia Ani in Children: We should always apply it cold for when used warm it will relax as much by its Warmth on the one hand as the Medicine will brace and astringe on the other. An Infusion of Pomegranate Flowers gives us an agreeable Gargle in relaxations of the Uvula.

Logwood is a weak Astringent, insoluble in our fluids either in Decoction or extract. It is in many respects much Inferior to other Astringents, hence it is entirely neglected.

We are in the next place to treat of
Emollients.

These are such Substances as relax the Rigidity of the Solids, diminish their Cohesion and introduce a larger quantity of Fluid or Moisture. Hence they are indicated in Spasms, Dryness, and Contraction and other Cases of this kind, and in Rigidity either of the simple Solids or moving Fibres. All Substances containing Water, Oil or Mucilage are Emollients: It is not of much Consequence which we employ. Warm Water will answer every Indication of Emollients. We are therefore to treat of the **Hot Bath.**

Hot Bath. The Effects of this are not simply emollient; it is also Antispasmodic and under some Circumstances may prove Stimulant. We shall consider its Effects in each of these Ways.

The Use of the Warm Bath was introduced in the earliest Periods in Warm Countries where they are not only agreeable but necessary. In Greece and Rome it was so much employed as to become one of the most fashionable & expensive Articles of Luxury. Their Physicians employed it for the preservation from and cure of many Disorders. In the warmer Climates, where it is so necessary, that the perspiration should be kept up, the daily use of it is attended with considerable Advantage. Whether it will be productive of equally good Effects in the colder Countries is doubtful. It will not perhaps answer so well as in the warmer Climates: but in these there is no doubt but that it may be employed with considerable Advantages as a Medicine.

We are first to consider its Effects and the Manner of its Operation, and thence to infer its Utility in different Diseases. By a **Hot Bath** or **Balneum**, Physicians generally mean a total submersion of the Body in Warm Water. We are not to consider it in this limited Sense only, but are to extend it to the external Application of Warm Water to the Body, whether by Submersion, Affusion, pediluvia, Lomentation, Vapour or Steams applied to the Body.

Baths may be made of two kinds of Water, Simple or Impregnated and their Effects have been considered as different. We shall first treat of the Effects of Simple Water by which you will be enabled to understand those
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the Impregnated and indeed the Effects of these differ very inconsiderably from those of the simple and we find that in those Cases where impregnated Waters have been particularly recommended, Simple Water will answer equally well, provided there is the same Heat. The Effects of the Hot Bath depend upon Heat and Moisture. We shall first consider the Effects of these separately.

Water applied to the Skin dissolves the Mucus with which that part is naturally supplied and washes off all Uncleanliness adhering to it. It opens and distends the pores, increases the perspiration and hence prevents all diseases arising from its Obstruction. It takes off the Acrimony from the Skin which is often the Cause of this Disease. These Effects may be produced by Water independent of Heat, but is evident they must be more considerable from Warm than from Cold Water. Its Effects however are not confined to the Surface of the Body, it penetrates the Scarf Skin or Cuticle and relaxes the Nerves and Nervous Expansions under it. By Sympathy these Effects are extended over the whole Body. It has been supposed even to penetrate the Skin and Muscles and to relax the Ligaments of the Articulations: But we can perceive no pores by which it can penetrate the Skin, and even supposing it could pass this, it is not probable that it could penetrate the Cellular Membrane extended under this almost all over the Body and replete with Fat. We can perceive no Vessels on the Skin but the exhalants and inhalants or Absorbents. It may be taken up by the Absorbents and carried into the System and then exert its relaxing Qualities, but we see these Effects are produced in a very different Manner from what was supposed. By passing the Lymphatics it dilutes the Fluids washes away Acrimony in the Lymphatic Glands and prevents Obstructions from being formed in these parts. That the Water is taken up by the Lymphatics is proved by a Case related by Dr. Simpson Professor of Medicine in the University of St. Andrews in Scotland. A Young Man in a Fever attended with a Diarrhoea, altho' labouring under great Thirst, either would or could take no Drink. A warm Pediluvium was ordered. His thirst was removed and a short time after he had taken his Feet out of the Water he had a liquid Stool little more coloured than the Water of the Bath.

The Effects of Heat are very considerable upon the living Body. These Effects
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are proportioned to the Degree of Heat employed. The common Heat of Baths is from 80° to 100° Degrees of Fahrenheit's Thermometer. If the Heat is below 80° no considerable Effects can be produced, if above 112° it cannot be continued for any length of Time without occasioning pain. Heat rarifies and expands the Fluids and molifies the Solids. When a Degree of Heat greater than that of the Atmosphere but less than that of our Bodies is applied to it, it produces an agreeable sensation. It relaxes the Cuticle and Nerves expanded under it, it increases their Sensibility and by Sympathy these Effects are extended over the whole System. But if a degree of Heat greater than that of our Body, or even less if it is continued for a considerable length of time, proves a powerful Stimulus. Some Animals become torpid and even dead when the Temperature of the Air is not above a certain Degree of Heat and they may be recovered by applying a greater Degree of Heat. We may from this and many other Circumstances infer that the Mobility of the Nervous Power depends in a great Measure upon Heat and that Heat is the principal Stimulus of the Animal Body. After a person has remained some time in the Hot Bath, we find the Veins upon the Surface of the Body become tumid, this is owing to the Heat expanding the Fluids and relaxing the Solids. It is also owing to the Stimulant Effects of the Hot Water determining a greater quantity of Fluids into the Veins.

We are now to speak of the Diseases in which the Hot Bath is useful

- 1.st By deterging and preventing Scurf, by washing away Acrimony and relaxing the Skin it takes off Obstructions and prevents Congestions being formed there. Hence it is serviceable in all Disorders of the Skin.

- 2.nd As it increases the insensible Perspiration it will prevent and remove Diseases arising from an obstructed Perspiration. I have repeatedly mentioned, that Diarrhoeas and Dysenteries, Vomiting, Colics &c are frequently if not always owing to this Cause. The Hot Bath is of great Service in these Disorders. Many Diseases tho' not owing to obstructed Perspiration are yet kept up by this. It will prove serviceable in these by keeping up and promoting this Discharge. It is on this principle that it proves useful in Disorders arising from a vitiated State of the Humours, as the Scurvy, which probably might be prevented

prevented by the daily Use of the Warm Bath.

Many Disorders are owing to foreign Matters taken into the System, which are again to be expelled by some Excretions. The Warm Bath by keeping up the perspiration will carry off these Miasmata. Hence it proves very serviceable in all Contagious Diseases, as the Syphilis or Lues Venerea. This Disorder tho' it is not to be cured by the Warm Bath alone, yet it is much sooner cured by other Remedies when the Warm Bath is daily employed. Hence it is very easily cured in warm Climates and we succeed best in the warmer Seasons. Altho the Warm Bath produces these good Effects, it is attended with this Disadvantage that it renders the Body more susceptible of Cold and the Disorders arising from it. Hence its daily Use is much more proper in the Warm than in the Colder Climates. It is dangerous to expose the Body to the Air immediately after Bathing. Galen who practised in a Warm Country, prudently observed that after Bathing the Cold is to be carefully avoided.

3.^d The Warm Bath takes off all Obstructions in the Skin and Cuticle and is therefore useful in Phlegmons and all kinds of Inflammations, if we except one the Erysipelas which is attended with an exudation of an acrid Mucus by which it is extended. This is to be treated with dry rather than moist Applications as we mentioned when treating of Exsiccants.

4.th By increasing the Circulation of the Blood and promoting the Influx of the Nervous Power it proves serviceable in Atrophy, or a general Wasting. On these accounts also it will be of use in partial Palsies and even in an Hemiplegia.

5.th From its Stimulant Effects and increasing the Circulation it proves useful in the deeper seated Inflammations and hence we see why warm Dementsations so often increase the Rheumatism.

6.th It extends its Effects over the whole System. The Warm Bath often proves serviceable in rigid Tendons and Ligaments and in Contractions. Here it acts by its relaxing Qualities. It often proves highly useful in Contractions of the Fingers and Toes, by promoting the Influx of the Nervous Power into the Extensor Muscles and enabling them to overcome the rigid Flexors. From promoting the Nervous Influx, the Warm Bath often proves useful

useful in the Chronic Rheumatism, which is frequently owing to Debility of the Muscles in the Part affected.

7th I mentioned formerly that the Consent of the Stomach was greater with no Part than with the Surface of the Body. The Warm Bath therefore frequently takes off spasmodic Constrictions of the Abdomen, particularly the Colic. In this Disorder when all other Remedies fail the Warm Bath proves the first of Medicines and will give relief if this is to be procured by Medicine. As there is a considerable Consent between the Skin and the Kidneys the Warm Bath proves very serviceable in removing Spasm in these Organs. Oftentimes a Stone is detained in the Ureters by Spasm and causing great pain there, the Spasm is further increased. The Warm Bath by taking off this Spasm proves a most efficacious Medicine, promotes the expulsion of the Stone into the Bladder and thus relieves the Pain. From its Antispasmodic Virtues the Warm Bath proves a most efficacious Medicine in the Hysteria and Hypochondriac Diseases. These are generally attended with Spasms of the Alimentary Canal for which we have found the Warm Bath to be very serviceable. It indeed mitigates Spasms in every Part. Its Effects are not confined to the Muscular Parts of our Body they are extended also to the Vascular System.

8th It is also used in Fevers. We shall next treat of its Utility in these Cases. It was much employed by the Ancients in the Cure of Fevers. Amongst the Moderns Dr. Gilchrist strongly recommends it and gives a Number of Cases, annexed to a Treatise on the Use of Sea Voyages in the Cure of Consumptions, in which it was employed with surprizing Advantages. It proves powerfully emollient and highly Antispasmodic. It increases the insensible Perspiration. It takes off Spasm, renders the Circulation equable and causes a Derivation of the Fluids from the Head. It causes Drowsiness and disposes to Sleep. Part of the Water being taken up by the Absorbents, it will act both as a diluent and Attenuant.

Pediluvia prove very serviceable in Fevers where there is a topical Affection of the Brain with a Delirium and Subortus Tendonum. They also prove very serviceable where there is a Coldness of the Feet. This they relieve by increasing the Circulation, determining a greater Quantity of Blood into

into them and keeping up a gentle Perspiration. In Fevers sometimes persons void a large Quantity of pale limpid Urine. This is generally a Sign of approaching Delirium. This Symptom may be relieved and the Delirium prevented by bathing the Feet in Warm Water. In this Case it has been common to cut up Animals alive and apply them to the Soles of the Feet. They act upon the same principle as the Warm Water, and we ought always to give it the preference as it can be more readily procured and its Effects are more certain. This practice also savours of Cruelty and will therefore be disagreeable to most Patients and from hence ought deservedly to be rejected. The Hot Bath is not to be used indiscriminately in all kinds of Fevers. It is hurtful in all kinds of Inflammatory Fevers and Fevers attended with topical Inflammation as it proves a Stimulus under certain Circumstances. The Warm Bath is principally useful in Fevers that are owing to or are attended with Debility. It is particularly useful in Nervous Fevers and such Fevers as depend upon Universal Spasm. (Vid. Gilchrist's Case of a Woman in a Fever after Child bearing.)

It is principally useful in Nervous Fevers where we want a moderate Stimulus combined with an Antispasmodic. Women after Child bearing are often extremely restless and can get no Sleep. In this Case Opium is generally employ'd a better Medicine; but in some Cases Opium instead of relieving, increases the Complaint and here the Warm Bath generally succeeds. The difficulty of applying the Warm Bath proves a great Obstacle to its use. It is generally applied to the lower Extremities and with propriety, both for Convenience and Advantage for the Spasm is generally strongest in the Feet as they are the most remote from the Heart. It may also be applied with more safety to the Feet than to any other part. We oftentimes cannot employ Pedicuvia as our Patients cannot be moved; in this Case we must use Fomentations. The Method which I generally advise is as follows. All the Bed Linen being removed, the Patient is to be laid on a Blanket, and is to be covered with one two or more Blankets according to the Temperature of the Air. Two small Blankets are to be at Hand. A Blanket is to be wrapped closely about the Patients Neck to confine the Heat. One of the small Blankets

Blankets is to be dipped in Warm Water and with it the Patients Feet, Legs & Thighs are to be fomented. When Blanket becomes cold, the other small Blanket is to be applied in the same Manner and in this Way we may continue the Fomentation for half an hour, an hour or even longer without putting the Patient to Fatigue.

As Warm pediluvia cause a Derivation from the Head, they are employed to preserve the Face in the small Pox. Care should be taken not to let our Patient sit too long in the Water lest by its Stimulus it should raise the pulse and quicken the Circulation and thus prove the Means of producing a more plentiful Eruption. The Patient should also carefully avoid keeping his Face over the Buck or over the Vessel in which the Water is contained lest the Vapour from the Water should relax that Part and produce a more plentiful Eruption than would otherwise appear.

By relaxing and taking off the Rigidity and Tension of the part to which it is applied the Warm Bath will communicate its Effects to those parts which sympathize with it. Hence Warm pediluvia appear to be proper in Cases of obstructed Menes and we find they are employed with success in this Case and likewise to bring on a Discharge of the Piles when they are suppressed. As the Warm Bath by its Stimulus determines a greater Quantity of Blood to flow to the part to which it is applied and will take it off from other parts. When there is too great a Determination of Blood to the Head, Warm pediluvia will take off this Determination and direct it to the Feet and hence proves serviceable in Delirium, Apoplexy, Lethargy, &c. Many however have objected to their use in these Cases on account of their Stimulus. This is a weak Objection for the stimulant Effects are in general confined to the part to which the Bath is applied and when applied to the Feet the Stimulant Effects are never extended over the System.

As some part of the Water is absorbed it will pass the Lymphatic Vessels and Glands wash away Acrimony dilute Viscidities, take off all Obstructions & clean the Glands. By a Bath made of Broth or other nourishing Substances Persons have been kept alive in Cases where Deglutition has been obstructed.

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The Warm Bath has of late been introduced into much more general Use than formerly. The Abbe D'Auvernois a gentleman of a truly philosophical Disposition, in his Travels to Siberia, observed that the Inhabitants in that Cold Country made considerable Use of the Warm Bath, for the Cure of all Disorders arising from obstructed Perspiration, and with great Success, and that the Degree of Heat was so great as to appear almost incredible, beyond what more civilized Nations had any Idea of. This put the Literati in France upon making Experiments to determine the Degree of Heat which the Human Frame was capable of bearing. Dr. Fordyce and Dr. Blagden at London found that they could remain in a Room heated to 210° of Fahrenheit's Thermometer for 7 Minutes without any bad Consequences following and that even 260° might be submitted to with tolerable Ease. In this Heat Eggs are roasted and a Beef Stake in 40 Minutes was not only dressed but dried. These Observations show us, that our Frame contrary to the received Opinion of Boerhaave and others can sustain a much greater Degree of Heat than that which it generally supposes. They have also lead to many curious Speculations concerning the Animal Economy and have given rise to an Opinion that our System has a power of generating Cold to obviate the Effects of external Heat as well as of generating Heat to obviate the effects of external Cold. Besides Speculations these Observations have been of great service in the Practice of Physic. By applying so great a degree of Heat as we see can be employed without any Disadvantage many Disorders will yield more readily than they would do formerly. It is probable that the Cure of all Disorders arising from obstructed Perspiration, the Scrophula and Lues Venerea will be more readily cured than they formerly were. Two Observations which I am now to make, tho' they are not immediately connected with the Warm Bath, yet naturally enough arise from what has been said on that head.

The first proves the great Quantity of Water that the Absorbents take up when there is a Want of Moisture or Fluid in the System: Some unfortunate Seamen who were necessitated to take to their long Boat as their last Resource, were almost dying for Want of Water, when, either by Accident or design they threw themselves into the Sea to bathe and they found that their almost insufferable

insufferable Sensation of thirst was quickly removed and that the Evacuation of Urine was increased. They had recourse to this Method several times afterwards and always with the same success. Dr. Franklin thought this of so much Consequence that he published a short Essay giving an Account of it, that other persons in the like Situation might avail themselves of it.

The second was communicated to me by Dr. Shiell who was formerly in this City, and who had experienced the usefulness of the Application himself. He recommended it to several others who all experienced its Utility. This Gentleman was subject to a most violent Head Ache for several Years which he had never been troubled with untill a Recovery from a malignant Fever which left a Coldness of the Feet. As he was himself a Physician and in practice, he had recourse to every Application that he had ever heard or read of but without Relief. As he had been a Student under Dr. Cullen and entertained an high Opinion of his Medical Abilities he went from Ireland to Edinburgh to consult him: all Dr. Cullen's Efforts to relieve him were in vain. He then tried the most celebrated Physicians in London but unfortunately for him, their Art proved ineffectual. He now gave up all hopes of Recovery and had nothing to depend upon but patience under his sufferings. He was upon his Return home in this Situation when he fell in with an Old Friend, one of his fellow Students at Edinburgh, to whom he related the melancholy detail of his sufferings and his deplorable State. His Friend advised him to entertain better Hopes and gave him positive Assurances of Relief provided he would stay with him a few days, and make use of a domestic Remedy he would recommend to him, which he told him would increase the perspiration in his Feet. This was the summit of his Wishes; he therefore complied with the Request of his Friend, and in four days was relieved of the Coldness of his Feet and Headache. Bay salt performed the Cure. The Salt is to be made dry before the Fire and then reduced to an impalpable Powder and quilted between Woolen or Tow Cloths. The thickness of the whole need not exceed that of a Crown piece. This is to be worn day and Night applied directly to the Soles of the Feet. The Effects of it are to keep the Feet warm and in a gentle Perspiration. I have recommended it in several Cases, and never knew it fail to produce these Effects; in some the Moisture was so great as to wet the Linen thro' so as to oblige them to

to change the Application twice a day. If you recollect, (as I told you when treating Condiments,) how powerful a Stimulus Salt is to the Animal Fibre you will not be at a loss in accounting for this Cure, i.e. by exciting a proper Determination of Fluids to the Feet. I formerly mentioned the Use of Salt in Hemorrhages and that it was the principal Remedy in the Hemoptysis. From this we should learn never to slight the Experience of even an Old Woman. It is not always left for Physicians to make Discoveries in Medicine, for the greatest Part of our most Capital Remedies have been introduced into the Materia Medica either by Chance or by Quacks and Illiterate Persons.

We are next to treat of some particular Substances employed as Emollients. We observed that Emollients were such Substances as relax the Rigidity of the Solids, diminish their Cohesion and introduce a larger quantity of Moisture and that they are indicated in Scarcity, Dryness and other Disorders of this kind. All Substances containing Mucilage, Oil or Water are Emollients. Warm Water will answer almost every Intention of Emollients. As I have been so very diffuse on that head, I shall have the fewer Observations to make on particular Substances.

Radix Althoea, or Marsh Mallow Root deservedly holds the first place among the particular Emollients. It may be applied externally in Swellings or Inflammations as a poultice. We likewise use it internally. A Decoction or rather Infusion of an Ounce of the Root in a pint of Water affords us an excellent Remedy in an Acrimony of the Fauces. This is also very excellent in Chronic Dysenteries attended with great Pain and gripings where the natural Mucus of the Intestines is generally abraded. A Decoction of it is employed in Nephritic Cases. The Decoction is very serviceable in violent purges occasioned by too severe a Cathartic. The Root boiled in red Wine affords us an excellent Brush for the Teeth, to preserve them & to keep them clean. The Root may be given to Children to chew when Teething & is much preferable to the hard Substances commonly given as it will yield to the Gums and not injure them. The Mucilage applied externally will speedily remove the pain arising from Blisters. The Decoction drank plentifully will prevent the Strangury which is often consequent upon the Application

Application of Blisters. Internally, it proves very serviceable in Strangury, Pleurisy and a tickling Cough. Externally it is applied to mitigate Inflammation, to mature Abscesses, to sheath parts excoriated and to remove pain.

Linseed may be employed in the same Cases with the Althaea. Linseed Tea proves very serviceable in Ardor Urinae, Nephritic Pains, Coughs, Pleurisies and all Inflammations. The Meal is sometimes employed in Poultices to relax, mature and take off pain. The Oil is not apt to turn rancid as the other Oils and is sometimes employed in Emollient Glysters. It is also given by the Mouth.

Gum Arabic & Tragacanth possess nearly the same Virtues, and indeed the Virtues of all the Emollients are so much alike that we must determine the Use of one in preference to another merely from Convenience. We in general for external Use employ the Farinacea and a Poultice of Bread and Milk is perhaps equal to any of the more compound and apparently more artful Preparations, especially if a little Oil or Hogslard be added to keep it moist and to prevent the Chaps and Fissures of the Skin which are often produced by the external Application of Emollients.

We are in the next place to treat of the

Stimulantia

These are such Substances as excite the Action of the moving Fibres and do not act on the dead Fibres. Whatever excites Motion or Contraction in an Animal Fibre is a Stimulant. Stimulants are either direct or indirect. The indirect are those which act upon the Organs of Sense by which a perception is formed in the Sensorium commune and by this a more copious Determination of the Nervous power into the whole or a part of the System is produced. The Direct are such as act immediately on the moving Fibre without any Intervention of the Sensorium commune.

Stimulants are divided into Chemical and Mechanical. In the Mechanical the Operation depends on and can be explained from the Figure. Thus a Sharp Knife may stimulate: here we know the Action depends entirely on the Edge of the Knife. The Chemical are those in

in which the Operation depends upon some peculiar property of the Body with which we are unacquainted. Thus Heat proves a powerful Stimulant but we can not tell upon what Property its Effects depend. Most of the Stimulants we employ are of the Chemical kind for their Operation seldom depends upon their Figure or Construction. The Operation of Stimulants is of two kinds: first, that which is common to the whole System and indiscriminately affects every Fibre; thus a Knife will cut and stimulate any Fibre. Many of the Saline Substances affect every Fibre indiscriminately. Secondly, That which is confined to some particular part; thus the Rays of Light affect only the Eyes, Sound the Ear, Odour the Nose and so of a variety of other Stimulants. The Operation of Stimulants therefore seems to be confined to the Nervous System. This leads me to make a few Observations on the Nerves; which I am the more inclined to do as Dr. Monro after thirty Years attention to the Brain and Nerves has made some important Discoveries which throw great Light upon the Subject and which have escaped the Notice of all the Anatomists that went before him. I am not here to follow him in his Anatomical Descriptions, which you will undoubtedly have in their proper place, but am only to consider the Physiological part.

Monro observes that the Human Species have more Brain in proportion to their Size than any other Animal. This however is not the Case with regard to the Nerves, for in the Human Species as well as in all other Animals the Size of the Nerves is in proportion to the Size of the Body. From this Fact he draws this Conclusion and I think with Reason, that the Brain in Man is not framed merely to afford Origin to the Nerves but is also the Seat of the Mind or our rational Faculties. From some preternatural Appearances where the Animal Functions were carried on when a Child was born with little or no Brain, or where this had almost been entirely destroyed by Disease, he concludes that all the nervous Energy is not derived from the Brain but that it is generated in every part of the Body. He found also that the pia Mater surrounds every Nerve to its ultimate termination and Ramification and it is probable that it serves the same purpose to them that the Periosteum does to the Bones. This Opinion of Dr. Monro seems confirmed from this Circumstance that Insects are furnished with a Brain; what in them bears a resemblance to a Brain being

being rather to appearance an Origin of a Nerve than a Seat for the Sensorium Commune. From this we may account with greater Satisfaction for many Circumstances than we formerly could. Thus we know that a considerable Tone may be given to a Limb by a Stimulus applied, as by Friction. This was supposed to be owing to a greater Determination of Nervous Power and Blood into the part being produced. But we can more readily account for it from the Generation of Nervous Energy in the Limb. This however is not all for Dr. Monro Observes that there is a considerable consent between the Nervous & Vascular parts by which a greater Determination of Fluids into the part is produced. This seems to be confirmed by a Fact mentioned by Mr. Bell of Edinburgh in a late System of Surgery. In the Operation for the Aneurism where the principal Artery was tied, the Nerve was included in the Ligature; the parts below became cold and torpid and their Sensibility was increased in proportion as the Circulation in the lower part became considerable. Dr. Monro found that the different Nerves formed Anastomoses, by the fibres of one combining with the Fibres of another from a different part by which Connections are formed between the different parts of the Body, by the Nerves independant of the Brain. this is entirely new. Hence when a Nerve is injured or destroyed the Muscles and other parts to which it is distributed are not rendered entirely useless but retain some share of Sensibility and Irritability from the Connection of the Nerves. Dr. Monro supposes that Ganglions are formed by the Fibres of the Nerves mutually blending, each Nerve giving and receiving fibres, and that their Use is to generate the Nervous Energy. This is also entirely new and even directly contrary to former Opinions. Dr. Monro has also found that the Nerves taper and their Termination run in a serpentine manner, like the Lines in the palm of the hand; the Use of which appears to be that they may more readily admit of Distension when the muscles are in action. From what has been said we may draw the following Conclusions:

That many Disorders of the Nerves, for Instance partial palsies are entirely local and that they do not originate in the Sensorium Commune and hence that they may be cured by local Applications alone. That by the anastomosing of the Nerves, without the intervention of the Sensorium Commune, Nervous Sympathies are formed in the Body. And may we not from a particular Attention to these Anastomoses expect to be able to account

account for the various Sympathies which take place and also to discover new ones. These Observations I think will tend to banish all the metaphysical Reasonings which of late have been so very fashionable in Physic to so little purpose.

Stimulants are indicated whenever the Motions of the System are inert, languid, weak and slow. Hence they are indicated when the Motion of the Blood is suddenly stopped as in fainting. They are also indicated where there is a Sluggishness and Stagnation of the Humours as in the Cachexy and Chlorosis. Likewise in Gangrenes when owing to an hydropic, edematous, or cachectic State of the Body. Where Gangrene is owing to Inflammation and increased Action of the Solids Stimulants are hurtful; but when it is owing to a diminished Action of the Solids they are very useful. They are also employed in Intermittent Fevers to prevent the return of the Cold Fit when given before the Accession. Stimulants are also indicated in Nervous Disorders particularly in Palsies. The Causes of Palsy are very various and there may perhaps be Cases in which Stimulants will prove improper and hurtful, but whenever Palsy is owing to a Weakness and Inertia of the Nervous Power Stimulants are highly useful. They are likewise indicated in Vertigo, Lethargy, Apoplexy and other Disorders of this kind. Apoplexy has been divided into the Sanguineous and serous and the Application of Stimulants has been confined to the latter. Some mention a third Species of Apoplexy, which they say is owing to an Inertia of the Nervous Power in the Brain: Here Stimulants are undoubtedly necessary. But it is difficult to distinguish this Species from the others; nor are we certain that this Species exists, or that it is founded on practical Observation. In the Serous Apoplexy Stimulants may be useful applied externally at a distance from the head to occasion a Revulsion from the Head, and in this way they may also be serviceable in the sanguineous Apoplexy. But as to their external Exhibition in either of these Cases it appears to be attended with great uncertainty and I can have no Idea of its propriety. They are also indicated in particular kinds of Headache: those that are attended with Coldness, Paleness and Languor of the whole Body especially when they are of a Nervous Nature. But when Headache is of the Rheumatic Kind or is owing to Inflammation Stimulants are improper. When Pain is without the Cranium Blisters and Ether will sometimes give Relief, but when it appears to be an Affection of parts within the Cranium all our Efforts will in general prove ineffectual.

Stimulants

Stimulants are also indicated in Flatulencies, Acrescency and Spasms of the Alimentary Canal which are commonly owing to Weakness and oftentimes produce Costiveness and Indigestion. They act here by exciting the Action of the Stomach and Intestines and thus promoting the Digestion of the Aliment and Expulsion of the Faeces. These Symptoms, Flatulencies, Spasms &c frequently accompany the Hysterie and Hypochondriac Diseases. Stimulants are frequently indicated in them; they act here principally as Antispasmodics. They have also been employed for the Cure of the Gout. Of their Use in this Case we shall treat when we come to the Class of Bitters.

Stimulants are hurtful wherever the Action of the Heart and Arteries is too vigorous: hence they are improper in all Hemorrhages, Inflammations and all kinds of Fevers arising from this Cause.

Particular Stimulants.

These are very numerous. Dr. Cullen has a great Variety of them. I am not to treat of all he mentions but shall confine myself to those which deserve to be employed in Medicine.

Melissa, or Balm. I should not mention this were it not the Substance most generally employed in this Country in Infusion or Tea as a common Drink for the Sick. Its Virtues are very inconsiderable and happily for the Patient for as it is given indiscriminately in every Case, if it were possessed of much Efficacy, it would often do Injury. A Physician however who pays any regard to rational Indications will prescribe it only in such Disorders as are attended with Languor and Debility.

Savender. An Infusion of *Savender* may be useful in Diseases owing to *pituita frigida*, that is in such as are accompanied with Languor and Debility, and in Cases of Head Ache attended with or owing to Languor. It is also recommended in tremors of the Extremities, paralytic Affections of any part of the Body, a Dimness of Sight and a Dullness of hearing.

Marjoram is possessed of some Acrimony with an agreeable Odor. It is useful in all Cases of Languor and Debility and hence has obtained the Name of a powerful Cephalic. It is useful in Infusion in the pituitous Asthma and Catarrh.

Catarrh when it is not attended with Fever as it promotes Expectoration is possessed of a gentle Antispasmodic Quality. It is the strongest and most powerful of the Claps to which it belongs if we except the *Marum verum* or Syrian Mastic which has been highly recommended in all those Disorders in which the others of this Class are employed.

Hysop and *Pennyroyal* agree pretty much in Virtues. The latter expels Flatulencies and is a powerful Antispasmodic; it will promote Menstruation when this is obstructed by a Spasmodic Affection of the Uterus, and it is generally employed by the Women in their *pediluvia* to bring on this Discharge when it is obstructed. They are both serviceable in Diseases of the Uterus when they are not attended with Fever.

Of the *Mints* there are a great number many of which are employed in Medicine.

Peppermint. Its action is more considerable and sooner extended over the System than that of any of the others. *Peppermint Water* may be employed with advantage in Vomiting, Coughs, Colics and all Diseases arising from Flatulencies or a Distention of the Abdomen from Air contained ^{the name of stomach} in the Intestines and it has obtained and carminative. *Peppermint* will relieve the Obstruction of the Menses when it is owing to Spasms of the Uterus & Alimentary Canal.

Sage in many Cases proves a good Remedy. It was highly esteemed by the Ancients. Besides its Stimulant it is possessed of an astringent Quality. It affords a Concretion something similar to Camphor. Van Swieten recommends an infusion of *Sage* for those Night Sweats which follow and often attend other Disorders and are owing to Debility. It has been also recommended in Tremors, Palsies and the *Fluor albus*. *Sage* has been used by the Good Women in the same manner as Balm, as a Drink for the Sick, but as it is a more efficacious Remedy we should be careful not to give it when there are Symptoms of Inflammation. We should confine it to those Fevers that are attended with Languor and Debility. *Sage* has been recommended to prevent Abortions when they are become habitual and nothing is more common than for the good Women to prescribe red *Sage* in this intention. Its use is frequently attended with Success in this Case.

Another

Another Set of Stimulants is comprehended under the Title of Umbelliferae. Of these are the following: Anise, Carraway, Fennel, Cummin, Coriander, Wild Carrot, and Candy Carrot. The part of them generally employed and in which their Virtues principally reside is the Seed. Of the following only the Roots are employed, Angellica, Burnet, Saxifrage, Lovage and Italian Hartwort. These are all Carminative and Antispasmodic assist Digestion, relieve Head aches arising from crudity, dispel Flatulencies and cure Colic and other Disorders arising from Flatulencies.

Angellica has been accounted Alexipharmic and has been highly extolled in Contagious Diseases. It however answers no better than any other Stimulant and Diaphoretic Medicine. The Ancients had a great Opinion of Alexipharmics which they expected would prevent Poison or Contagious Matter from producing any bad Effects upon the Body. We now know that no Medicine is properly Alexipharmic and those Substances which were most extolled by the Ancients in this Intention are in general either possessed of very little Efficacy or are wholly inert.

Anise and Fennel are the most powerful and the most agreeable of this Class. A Tea of these Seeds is a very excellent Medicine for Children who from the Acidity of their Milk are afflicted with Flatulencies and Gripings. They are much preferable to the pernicious Spirituous Liquors generally given by the Nurses in this Case.

The Wild Carrot has been recommended in Calculous Concretions of the Kidneys and Bladder. Its use however in this Case seems doubtful, for it neither dissolves the Stone in nor out of the Body, nor are its diuretic Virtues considerable, appearing to be only casual. We have however convincing Testimonies of Relief being obtained by the Use of this Medicine. It may perhaps act as an Antispasmodic mitigating the Pains arising from the Stone or Gravel which appear evidently to be of a spasmodic Nature and we know that the Symptoms of the Stone may often be alleviated by Opium and other Antispasmodics.

The next Order are the Siliquose. Of these are Mustard, Radish, Horse Radish, all the Nasturtiums and Scurvy Grass. all these are employed for the Cure of and preservation from the Scurvy. They are the only

only Stimulants that are to be employed with Safety in this Disease, for as I observed when we were upon the Scurvy nothing is proper but such Substances as are liable to undergo a Fermentation in the stomach and be converted into our Fluids. These Substances tend to increase the Evacuation by Sweat and Urine while at the same time they correct the Tendency of the Fluids to Putrefaction.

Mustard Seed is very serviceable in paralytic Affections. The Dose is 3 or 4 Table Spoonful of the Seed unbruised in a day so as to keep the Body gently open. In this way I have found it one of the safest and most efficacious Remedies we can employ in this Case. It never excites a Sensation of Heat in the Stomach nor is there any danger of Inflammation being excited. By being given unbruised the Stomach extracts its Virtues slowly and thus the Heat & Inflammation are prevented which would be produced were we to give the same Quantity bruised or in Powder. Mustard when bruised and taken in the dose of $\frac{1}{2}$ ss. or $\frac{1}{2}$ j in powder affords us a most excellent Emetic. Its Action is confined principally to the Stomach and is not extended over the System. It is particularly serviceable when we want to evacuate the Contents of the Stomach without affecting the rest of the System. We may by giving the Patient a weak Infusion to Drink carry the Operation to what length we please for in the above mentioned Dose it seldom produces more than one Evacuation unless it is encouraged.

Mustard Whey affords us an excellent Remedy in Lethargy and Serious Apoplexy and in all Cases of Languor & Debility. It is of the greatest Use in the last Stage of Nervous Fevers in which there is great loss of Sensibility. It is carried into the Intestines and proves purgative. Some part will enter the Circulation and will prove a powerful Stimulus to the whole System. It increases the Evacuations by Urine and by Sweat and solves Spasm upon the Surface. Mustard is sometimes applied externally to excite the Action of the Heart and Arteries, which it does more powerfully and more effectually produces a derivation of Blood from the part affected than Blisters. We may in many Cases employ Sinapisms with good Effects when our Patients will not suffer us to apply Blisters, tho' the Pain arising from Sinapisms is much greater than that arising from Blisters. We must not however in all Cases substitute Sinapisms for Blisters. In Cases of Topical Inflammations and in Inflammatory Fevers they by their great Stimulus will evidently prove hurtful

Horse Radish

Horseradish is possessed of similar Virtues with *Mustard*. It is employed infused in *Beer* with *Mustard* as a constant Drink in *Dropsies* owing to *Languor* and *Debility*, or *Obstructions* of the *Viscera* from *Sluggishness*. Hereby its *Stimulus* it may act as a *Diuretic*. It may answer very well in this way as a common Drink for the patients as it will tend to remove the intollerable *Thirst* with which persons in this Disease are commonly tormented, and will also pass quickly out of the System. It has been recommended in *Coughs*, *Hoarseness* and particularly in the *Humoural Asthma*. It is to be given made into a *Syrup* with *Sugar*. All the *Siligosæ* are recommended in *Hoarseness* and for giving a clear Tone to the voice. Agreeing with the *Siligosæ* in Virtue are,

Garlic, *Onions* and *Leeks*. *Garlic* has been recommended for the Cure of *Worms*, which it is said to destroy even when applied to the *Navel* or *Soles* of the *Feet*. However this may be, when given internally, it destroys *Worms* and if persisted in for a sufficient length of Time it will generally relieve persons troubled with *Worms*. *Garlic* proves a powerful *Diuretic* and *Diaphoretic*. It appears in its sensible Qualities to approach very near to *Asa foetida*. In the *Catarrhus senilis*, a Disease incident to *Old Age*, in which from the Diminution of the natural Evacuations the *Humours* are thrown upon the *Lungs*. In this Case all we can do is to alleviate the Disease, for we cannot entirely remove it. This is to be done by increasing the perspiration by some *Diaphoretic*. *Garlic* and *Asa foetida* are the best Substances we can employ for these purposes. Their constant use is attended with this Disadvantage that they render the Persons *Breath* and perspiration very offensive, but this is an inconvenience that must be put up with. The *Garlic* should be taken in the *Morning* and *Evening* and swallowed whole, for then its Virtues are better extracted and it will more effectually prove *Diaphoretic* and *Diuretic*. *Garlic* has been recommended for the Cure of the *Stone*, but it certainly can have no Effects in this Case. *Boiled* and *roasted Onions* have been strongly recommended for promoting the *Maturation* of *Boils* or *Abscesses*, but I can have no Idea of their superior Efficacy, for by boiling they are deprived of all their *Acrimony* and are converted into a mucilaginous

luginous Substance. Any simple and more agreeable Mucilage will answer equally well.

The next Substances we are to treat of are the Coniferae. Under this Head we comprehend the Fir, the Pine and Juniper. Their Virtues are nearly the same and are owing to the Turpentine they contain, and will therefore be greater or less in proportion to the Quantity of this Turpentine. The Fir and Pine Tops are frequently employed in Diet Drinks for sweetening and purging the Blood. An Infusion of them proves diuretic and diaphoretic and hence is serviceable in the Scurvy. This has also been found very useful in Eruptions and Soulnesses of the Skin which were thought to be owing to a Scorbutic Habit of Body. These Eruptions are owing generally to an obstructed Perspiration by which the Matter that should be thrown off in this way stagnates under the Skin, becomes acrid and by its stimulus produces Inflammation when Pimples, Ulcers &c are produced independant of any Acrimony or Impurity in the Mass of Blood. As this is the Case no Medicines will tend to remove but such as increase the Perspiration and have a tendency to the Superficies. For this purpose an Infusion of the Fir Tops will answer as well as any thing else. By this Remedy the late Lord Chancellor Nottingham was cured of Eruptions in his Face with which he had been troubled many Years and for which he had used a Variety of Medicines to no purpose. It is of no great Consequence which Species of the Fir we employ as they are all possessed of similar Virtues. We in general choose the shoots of one Year when they are about a Finger's length.

The Wood and Berries of Juniper agree in Virtues with the Pine and Fir. They are much employed as diuretic and Carminative. An Infusion of Juniper Berries or Oil of Juniper may be given with advantage in Spasms and Colics owing to Flatulencies, but where there are any Inflammatory Symptoms we ought to refrain from the Use of this remedy. This may be serviceable in pituitous Asthma when it is not accompanied with Fever. Van Helmont strongly recommends the Rob and a certain preparation which he kept a secret as a powerful diuretic in the Dropsy. We don't however trust to this Medicine alone for the Cure of the Dropsy. The Rob.

may serve as a convenient Vehicle for giving Diuretic Medicines with which it corresponds in Virtues and we should always have this in View, never to add any Medicine to a prescription which does not correspond in Virtues with the principal Medicine. An Infusion of Juniper Berries has been recommended in the Nephritis and in Calculous Concretions of the Kidneys and Bladder, but as these are generally attended with Inflammation, this Medicine from its Stimulus is certainly highly improper. A Spasm of the Bowels will sometimes so much resemble a Fit of the Nephritis as to deceive both Patient and Physician. In this Case an Infusion of Juniper Berries will most effectually give Relief and probably from some such Case they at first tho' improperly obtained the Reputation of being serviceable in the Nephritis.

The next Substances we are to treat of are the Balsams; These get their Name from their agreeable Odour and their property of resisting Putrefaction. They are used both externally and internally. They may be defined, Resinous, Oily Bodies, Odoriferous, of the Consistence of an Ointment or Liniment. They are either Native or Artificial. They are also divided into the liquid and the dry. Of the Liquid are Balsam Copaiba, the Balsams of Peru, of Tolu, of Canada and the various Turpentine.

Balsam Copaiba has been much employed for the stopping of Gleet in the Urinary passages whether owing to a Venereal Cause or not. It has been commonly supposed in this Case to act as an Astringent. It is however possessed of no such property for when given in sufficient quantity it affords a most excellent Laxative. It is evidently a Stimulant and it has a particular Tendency to the Urinary passages as appears from its imparting to the Urine of persons who take it the smell of Violets, its bitter Taste, & its aggravating a Gonorrhœa. Gleet is generally owing to Debility and Stimulants by giving Tone to the Parts and by exciting an Inflammation and Constriction of the Mouth of the Glands in the Urethra will often cure them. Cantharides are often found effectual in curing a Gleet

Gleet and probably would be much oftener so were not their effects so uncertain for a certain Dose will produce very different Effects in different persons. Riding a long Journey on Horseback has also been found to stop a Gleet. In these Cases the Effect is certainly produced by the Irritation given to the Urethra, by which an Inflammation is produced which causes a Constriction and thus stops the Mouths of the Glands. Balsam Copaiba may act in the same manner. It ought not to be given while there is any Inflammation remaining. From its Tendency to the Urinary Passages it has this Advantage that it will exert its effects without stimulating the whole System. Bals. Copaiba has been also recommended in the Fluor Albus. In this Case it may act by communicating an Irritation to the Uterus from its Contiguity to the Urethra; and even when this Disorder is owing to a general Relaxation it has been cured by a long continued use of this Medicine. Combined with Salt of Tartar it is recommended in the pituita Purgida and the Pituitous Asthma, also in Glandular Swellings and Obstructions. We need scarcely repeat the Observation that we should be careful not to use it where there are febrile Symptoms.

The Balsam of Peru is applied externally where a Nerve, Tendon or Periosteum has been injured. It is used internally from 20 to 40 Drops for a Dose in the Cure of the Colica Pictorum. Sydenham and Gillany the latter of which practised Physic for many Years in the Island of Barbadoes, bestow great Encomiums on it in this Case. The latter particularly mentions it for the Cure of the Palsy which is frequently the Consequence of this Disease. It is likewise recommended in Consumptions & Ulcers of the Lungs But on account of the Fever and Inflammation generally attending these Cases, appears to be improper. In the pituitous Asthma it is employed not improperly, for by its Stimulus it will prove Diuretic & Diaphoretic and also promote Expectoration.

The Balsam of Tolu is possessed of similar Virtues and it is employed in the same Diseases as the Balsam of Peru.

Turpentine has much the same Virtues. It is strongly recommended

ded by Dr. Pitcairn in the Sciatica when given in large Doses and persisted in for a considerable Length of time. It may be very serviceable in Cases of Habitual Costiveness owing to a weakened peristaltic Motion occasioning Flatulencies and Spasm. It is often used, in Cases of obstinate Costiveness, in Glysters where it is better than Salt and acts as an Antispasmodic. Turpentine combined with the Yolk of an Egg has been found very serviceable in Ulcerations of the Intestines when it can be applied to them. A Fumigation of Turpentine has been found serviceable in relieving the Pain arising from the Blind Piles.

Gum Guaiacum is supposed of similar Virtues with the Balsams we have just mentioned. It is particularly recommended in Arthritic and Rheumatic Cases. In the former it is said to be a useful Remedy. In the latter particularly in the chronic Rheumatism it is said to be a Specific. Dr. Pringle in his Diseases of the Army mentions the Use of it with Approbation. It acts by its Diaphoretic Qualities. We should be very cautious not to use it when there are Symptoms of Inflammation. It is principally of Service in the Chronic Rheumatism. Gum Guaiac by being mixed with the White of an Egg or the Mucilage of Gum Arabic becomes soluble in Water. Two Drachms dissolved in 3vj of Water with gr iij or gr iij of Tartar Emetic. will afford us a most elegant and efficacious Remedy. A Tablespoonful of this may be taken every 2 or 3 hours; or which will answer equally well it may be rubbed very fine with Nitre and a small Quantity of Tart. Emet. added.

Myrrh is an Exudation of some vegetable Substances collected by certain Insects and by them hoarded up in the Hollow Trunks of Trees, in the same manner as Wax is collected and hoarded up by Bees, whence it is brought to us in the Brains in which we see it. It was the Substance principally used by the Ancients for embalming and preserving dead Bodies from Corruption. Taken in large Quantities Myrrh stimulates the Stomach and the System in general. It affects the Urinary passages in the same Manner as the Balsams. Externally it is used in foul and sordid Ulcers as it resists putrefaction, and to prevent and cure Gangrene.

When

When given internally it will not cure putrid Disorders on account of its heating and Stimulating Quality.

It has been considered as Emmenagogue, but it has no particular Virtues in this Way, acting as all other Stimulants. Boerhaave placed the Cause of many Disorders in what he termed the Spontaneous Gluten and inert Fibre and in these Disorders he particularly recommends Myrrh, but as we do not know that this Cause exists we cannot be certain of the good Effects of the Medicine.

Gum Benjamin has been generally reckoned Pectoral. The Saline Substances called the Flowers of Benjamin are thought remarkably so. Its Use appears to be rather hypothetical in the common Dose of from grij to gr. We must give it in doses of grxx or grxxx to produce any Effects and even in this dose its Effects are inconsiderable.

We are next to consider some of the Woods employed in Medicine. The following are employed for the same Uses

Guaiacum. This, ever since it has been brought into Europe, has been esteemed very efficacious in Venereal Cases. The Effects produced appear to be in a great Measure owing to the sweating and emaciating Process combined with its Use. The Method of Using it is as follows; 12 Ounces of the *Guaiacum* is to be infused or macerated for 24 hours in of Water, which is then to be boiled untill one half is evaporated, the Patient is to be put in a warm Room and to drink plentifully of this Decoction which is to be warm. He is also to be in Bed, and by covering himself up is to excite & encourage a Sweat. He is to continue this Course for 24 Days. All this time he is to live on a very spare thin Diet, using a weak Infusion of the Woods for his Common Drink and taking the former strong Decoction every 24 hours. The *Guaiacum* in this Case has certainly the least share in performing the Cure, and there can be no doubt but that warm Water administered in the same manner will produce equally good Effects. The Italian Physicians are so well convinced of this that they often times use nothing else in the Cure of the Venereal Disease but Warm Water and Sweating

Sweating.

Sassafras has been employed in the same manner and in the same Intention with the *Guaiacum*. The best Method of using it is in Infusion. A continued Use of it may be serviceable in Cachexy and *Humor Albus*. It may be serviceable in Blotches and Eruptions of the Skin where it acts as a Stimulant increasing the Perspiration.

Sarsaparilla was used for the same purpose and in the same Manner as the *Guaiacum* with which it was frequently combined. It was for a long time neglected untill *M.^r Fordyce* again introduced it into practice in the following occasion. *M.^r Kennedy* had done great Service in Venereal Cases by what he called the Lisbon Diet Drink or *Kennedy's Decoction*, the Preparation of which he kept a secret. Many Conjectures were formed concerning this and amongst others it was supposed to be nothing but a Decoction of *Sarsaparilla*. This was therefore tried and was found to be serviceable particularly in chronic Venereal Complaints where Mercury had been previously given. When Mercury had not preceded its Use it did not answer so well. Where a Salivation had been employed without Effect, where there were Ulcers, Pains in the Limbs &c *Sarsaparilla* was found serviceable. There is no doubt but that *Sarsaparilla* is much inferior to the Lisbon Diet Drink. I have it from good Authority that this Diet Drink or *Kennedy's Decoction* will in a short time cure all venereal Complaints whether Mercury has preceded its Exhibition or not.

The *Cortex Mezerion* or Spurge Laurel approaches nearest to the Lisbon Diet Drink in Virtues. It is found of great service in removing Venereal Exostoses and Pains in the Bones. Take of Spurge Laurel and *Liquorice Root* each ʒij , slice and boil them in three pounds of Water untill only ℥ij remain. Let the Patient take this Quantity every 24 Hours and in 6 Weeks he may expect a perfect Cure.

Radix Contrayerva has been reckoned diaphoretic and alexipharmic and has been much recommended in Contagious Diseases arising from putrid Miasmata. It is also used in Nervous Fevers, to

to support the *Vita* and to promote Sweat. It is in these Cases given from gr. v to gr. x. every 2 or three hours. It may however be given to *gr. iij* without any sensible Effects. Hence it appears to be of little or no use but to trifle with.

We have now finished those Stimulants that could be ranked according to the Botanical Analogy. The following are ranked together from agreeing in sensible Qualities.

Aromatics are certain Substances which join to an acrid pungent Taste a fragrant Odor of the agreeable kind. Hence they remarkably affect our Organs of Taste and of Smell. They are all possess'd of an essential Oil Specifically heavier than Water. They are in general Productions of the Torrid Zone and agree in Medicinal Virtues as much as in sensible Qualities.

Cinnamon is the most agreeable. It grows naturally in the Islands of Ceylon from whence it is brought by the Dutch. It is said that when too great a Quantity of this has been imported, the East India Company order a Quantity of it to be burnt that the Price of this valuable Article may not be lessened. It is the best Cordial Stimulant in all Cases of Languor and Debility. Autumnal Intermittents are frequently attended with Languor and Debility. The Oil of Cinnamon is one of the best Remedies we can employ in this Case. A single Drop is a sufficient Dose. We should always prefer the Oil that runs towards the End of the process. Cinnamon is frequently added to Purgatives to prevent the Spasms arising from their Use. Thus it is very properly added to an Infusion of Senna. It is sometimes added to Rhubarb to increase its purgative Virtues and sometimes to increase its Astringency. When we add Cinnamon to Decoctions with a View of increasing their purgative Quality we should not put it in untill the latter end of the Decoction but when we want its Astringent Qualities we should add it at the beginning and let it remain during the whole time. Cinnamon is the safest and most agreeable Stimulus to lying in Women when they require the Use of such Medicines. It is a very good Carminative and is therefore very useful to Children who

who are troubled with Gripings and Flatulencies. When a Suppression of the Menses is owing to Spasm or Relaxation or Flatulency in the Alimentary Canal Cinnamon is a safe and effectual Remedy.

Cloves are more acrid and stimulating. The Oil is sometimes added to Stimulating Medicines, but as it is highly acrid we should be cautious not to be too free in its use. It is sometimes employed in the Tooth ache. A drop is put into the hollow Tooth to destroy the Sensibility of the Nerve. Cloves are useful in Paralytic Affections of the Tongue when the patient is able to chew them. They are also employed externally in Colics, Vomitings and Hiccoughs. They are useful applied to the Stomach of Infants that are troubled with Flatulencies. A weak Infusion or Tea may likewise be given in these Cases when they are not attended with Fever.

Nutmegs are the Fruit of a Tree native of the East Indies upon which they are said to grow in the same manner as our Hickory Nuts grow here. It is said they are all put in Lime Water before they are exported to prevent their germinating. In their Fresh or recent state they are possessed of a narcotic or stupefying Quality. Bontius who practised Physic for many Years in the East Indies observes that those Persons who used the recent Nutmegs freely were often affected with Stupor and sometimes with an Apoplexy. Hoffman relates the Case of a young Woman who upon taking a large Quantity of Mace to promote the Menstrual Discharge was seized with a Delirium that continued for several Hours. From this Narcotic Quality and their Astringency Nutmegs are useful in Diarrhoeas and Dysenteries. They are also useful in Relaxation and Debility of the Stomach.

Mace is possessed of the same Virtues with Nutmegs and is the production of the same Tree growing round the Nutmeg in the form of a Net-work.

Pepper when finely Powdered will excite Hiccough. It is employed by the Country People for the Cure of Intermittents. A Tablespoonful of unground Pepper is taken in a Glass of Rum about half an hour before the Fit comes on which it often prevents, by keeping up a constant

and not disagreeable Warmth which it communicates to the Stomach. If however it has not the Effect of putting off the Fit, the patient is sure to suffer severely for his Temerity when the Hot Fit comes on. From this we see that it is an ambiguous Remedy and even dangerous and that we ought not therefore to prescribe it for this purpose.

Serpentaria Virginiana. Our Common Snake Root, is a powerful stimulant with an Aromatic flavour. It powerfully resists putrefaction and hence is employed in malignant Fevers. In the beginning of these Fevers when there is an Inflammatory State Stimulants are hurtful. But in the decline when the Constitution is weakened and the Powers of Life have become low Stimulants are necessary; and here Snake Root is one of the best Remedies we can employ. It is also an excellent preservative against Contagious Disorders. It is generally hurtful in Vernal Intermittents on account of the Inflammatory Diathesis which generally prevails in these. But in the Autumnal Intermittents and Remittents it is one of the best Remedies and I scarce ever omit prescribing it in them. I likewise order it in all Nervous Fevers where it proves a most excellent Remedy. It is hurtful only where there are Inflammatory Symptoms, and even where there are Symptoms of Inflammatory Diathesis, provided the Fever is of the Intermittent kind, we may use Snake Root Tea during the Intermission with Advantage. It is highly useful for the Nausea which generally attends Autumnal Remittents. We oftentimes cannot give the Bark on account of the Nausea which it excites. In this Case I have found nothing preferable to giving the Bark in a Cup of strong Snake Root Tea. This will often be retained on the Stomach when everything else will be rejected by Vomiting. Strong Snake Root Tea is one of the Best Remedies for the violent and dangerous Nausea which sometimes occur in Remittent Fevers. In one Case of this kind, in which I prescribed it, it acted like a Charm.

Ginseng is a root which is in much Esteem among the Chinese. They employ it for preventing and curing all Diseases, and think it tends to prolong life.

They

They formerly procured it from Tartary, alone and the Chinese valued it so high as to give triple the Weight of Silver for it. for one pound of Ginseng of Tartary they gave 3 lb of Silver. It was found to grow plentifully in this Country and was some Years ago a valuable Article of Commerce. But from being carried to China in very large Quantities and probably some of it being of an Inferior Quality, the Chinese came to consider the whole as a fraudulent Imposition and therefore did not value our Ginseng near so high as that of Tartary. Notwithstanding the high Esteem in which it is held by the Chinese, Ginseng is possessed of little or no Virtue. It may serve as an agreeable and safe Masticatory to persons who require such an Amusement, much preferable in every Respect to the Nauseous Herb Tobacco.

Cascarilla has been employed in putrid and malignant Fevers. It has likewise been recommended in Intermittents, but it is by no means equal to the Peruvian Bark. Degner employed it in the Dysentery. Besides its Stimulating Quality, it is likewise possessed of an Astringent and narcotic Virtue. It may therefore probably prove serviceable in Chronic Dysenteries.

The next Set that agree in sensible Qualities are the Bitters. Of these the first is

Wormwood. This with Worm Seed and many other Bitters has been reckoned very serviceable for persons troubled with Worms. This Virtue seems to be ascribed to Bitters upon no good Foundation for Worms will live a considerable Time in these Substances out of the Body without showing any uneasiness. A long continued Use of Bitters may by giving Tone to the Intestines prevent the future Generation of Worms in the Intestines. Wormwood has always been esteemed for its diuretic Virtues and hence it has been frequently employed in the Dropsy. Its diuretic Virtues may be considerably increased by combining it with Salt of Tartar. Two Drachms or half an Ounce of Salt of Tartar dissolved in Zijj of an Infusion of Wormwood affords us one of the best Remedies hitherto
discovered

discovered for the Cure of the Dropsy. Wormwood has been used for the Cure of Jaundice, supplying in this case the place of the Bile. A Decoction of Wormwood with the Addition of a large quantity of Common Salt is applied externally in Gangrene. A long continued Use of Wormwood affects the Eyes with a disagreeable Sensation of Dryness, Contraction, Weakness and Inflammation attended with Head ache. It is likewise accused of bringing on Liddiness. The Effects seem to depend on its Narcotic Quality.

Carduus Benedictus was formerly employed in those Cases in which the Bark is now given. It may still be used with advantage in some Cases. Thus in the beginning of Intermittents when we cannot give the Bark, we may give our Patient a Cold Infusion ^{of Carduus} which will often produce a distinct Intermission and thus give us the Opportunity of administering the Bark.

Chamomile was the Substance most generally employed where we now give the Bark before this Remedy was discovered. It is possessed of all the Virtues of Bitters. It is a powerful Antiseptic and resists Putrefaction of every kind. Chamomile Tea may also be used with advantage in Remittent and Intermittent Fevers and probably would be useful much oftener were it not so apt to run off by Stool. Chamomile Tea is very proper to work off a Vomit with, as it does not relax the Stomach so much as warm Water and some part of it will be taken into the System and prove diaphoretic and diuretic.

Tanzy is said to preserve Animal Bodies from Putrefaction. The Women employ it for the Hysterics. They also use it in their Pediluvia to promote the Menstrual Discharge. In the German Philosophical Transactions it is recommended in the Dropsy. It may act as a Diuretic in the same manner as Wormwood. The Seeds of Tanzy are reckoned good against Worms but they will answer no better than any other Bitter.

Orange Peel contains a large portion of an essential Oil. It appears

appears to be heating and stimulating. It is very useful in Spasms and Flatulencies arising from Indigestion when these Complaints are not attended ^{with} Fever.

Lesser Centaury and Gentian agree very much in Virtues. They are both very pure Bitters and are Species of the same Genus. Gentian and Orange Peel are the principal Ingredients in what is called Stoughtons Bitter which is so much employed to strengthen the Stomach. By a long continued Use of this as well as of all other Stimulants the Tone of the Stomach is destroyed. The Root of Gentian is employed by the Surgeons in fistulous Ulcers to keep them clean and to keep their Lips from growing together. An Infusion of Centaury will answer the same purpose with Chamomile Tea. Centaury and Gentian are sometimes employed for the Cure of Intermittents. The Dose is ℥ss every half hour or hour. They are much inferior in this Case to the Peruvian Bark.

Columbo Root is a strong pure Bitter and a powerful Stimulant. I have found it particularly serviceable in checking the bilious Vomiting which attend remittent Fevers, particularly in the Case of a Lady whose Stomach was very irritable, who was relieved by this Remedy when several others had failed. She has not had a return of her Complaint since, which is now about a twelvemonth. Since that time I have given it frequently for checking Vomiting. The manner in which I generally employ it is to infuse ℥ss in ½ a Pint of boiling Water. After this has grown cold 1 or 2 Tablespoonfull are to be taken every 2 or 3 hours. It is also said to be a powerful Antiseptic but I have never had an Opportunity of experiencing its Effects in this Way.

Peruvian Bark is so much employed in Medicine that it well deserves a particular attention. This was first made known to the Governor of Loxa who by his Entreaties and friendly Offices to the Natives obtained from them the Knowledge of this Remedy by which they cured their

their Intermitents. He communicated it to the Spanish Viceroy, the
 Count de Chincon whose Lady lay dangerously ill of an Intermitent in
 1638. It was first brought into Europe in the Year 1640. In 1649 a Jesuit brought
 a Quantity of it to Rome and hence it obtained the Name of the Jesuits Bark.
 It was sold by these Fathers at an exorbitant Price. Two Drachms were how-
 ever in general sufficient to perfect a Cure. It was afterwards neglected un-
 till Sir Robert Salbot again employed it with great Success in 1679, tho he
 kept it a Secret and it was only known under the Name of the English
 powder. Louis the 14th purchased the Secret for a premium of 2000 Gui-
 neas and likewise allowed Sir Robert a pension of 100 Guineas per Year
 during Life. Since that time it has been universally known and very
 generally employed sometimes with and sometimes without propriety. Good
 Bark may be known by its Weight, Freshness, Brittleness and shining
 Appearance when broken. The best Method however to judge of its Good-
 ness is by making a Decoction of it in rain Water, for this purpose Zij or
 Zij may be boiled in a little Rain Water: the Decoction is to be poured into
 a clean Glass. If the Decoction appears red while warm but upon cooling
 turns white or pale and Deposits a Sediment we may conclude that the
 Bark is good, not otherwise. Bark has been employed in a Variety of
 Diseases and has been supposed to act by some Specific Property. It ma-
 nifestly is a Bitter combined with Astringency with some Degree of Aroma.
 From these Qualities I think we may explain its Virtues in all Cases in which
 it proves serviceable. It is useful in those Disorders in which there is a gene-
 ral or partial Debility, but it is hurtful in those which are attended with Ri-
 gidity, Plethora, Fever and Inflammatory Symptoms. In Vernal Inter-
 mitents which are generally attended with Inflammatory Symptoms, the
 Bark in general proves hurtful. In the Autumnal in which Debility
 and some degree of Putrescency takes place, from the first Invasion Bark
 proves a useful Remedy. When Obstructions are owing to Relaxation and
 Debility, by which the Solids are unable to propel the Circulating Fluids,
 whenever they stagnate, the Bark by giving Tone and strengthening the
 Solids proves very serviceable; but when these depend upon Rigidity

or a too vigorous Action of the Solids, or upon Plethora the Bark is injurious. The best Method of exhibiting it is in Substance from \mathfrak{zj} to \mathfrak{ss} every 2 or 3 hours or oftener, according to necessity. When given in Infusion or Decoction it does not answer so well as when given in Substance as it is more apt to run off by Stool or Urine and defeat our Intentions. The Bark is indicated in all periodical spasmodic Affections of the Head which depend on Mobility and Irritability of the System. It acts here by restoring Tone to the System and takes off the Relaxation on which Mobility and Irritability generally depend. When there are Inflammatory Symptoms we should avoid the Use of the Bark untill these are removed.

Thus the Chincough which is evidently a Spasmodic Disease may frequently be cured by a judicious Administration of the Bark. In the beginning of the Disorder when there are Symptoms of Inflammation or during the Paroxysm the Bark is highly improper; but in the latter End of the Disorder or on those Days on which the disorder is moderate it proves a valuable Remedy. The Bark is a useful Remedy in periodical Colics which return at stated Intervals. In Epilepsies which depend upon Mobility and Irritability the Bark may sometimes be of Service by taking off the Relaxation upon which these depend and restoring Tone to the System. It is of the greatest Service in Gangrenes that are owing to Relaxation and debility of the Solids. In this Case when there is imminent Danger we should pay no regard to Quantity. We may give it in as large quantities and as often as the Stomach will bear. From \mathfrak{zj} to \mathfrak{ss} may be given every $\frac{1}{4}$ or $\frac{1}{2}$ hour. We may also apply it in Tomentation externally at the same time. It is not a specific in this Case but acts by strengthening and exciting the Action of the sound parts, whence an Inflammation and Suppuration are brought on by which the mortified parts are separated from the sound. When Gangrene is owing to Inflammation and an increased action of the Heart and Arteries, the Bark is certainly improper, and acidulated, diluted Drinks are the best Remedies. I formerly mentioned how Inflammations might be occasioned by

by a Relaxation and Debility of the Solids as well as by their increased Action. In the former Case the Bark may be employed with Advantage. In the latter it is evidently highly improper. The principal and most general Use of the Bark has been for the Cure of Intermittent and Remittent Fevers. In these Cases it has also been supposed a Specific; its Virtues however manifestly depend upon its Bitterness, Astringency and Aroma, and were it possible to make a Combination by Art in which these properties did exist in the same perfection as in the Peruvian Bark, I do not doubt but that it would prove equally effectual with this in the Cure of Intermittent Fevers. Bitters and Astringents have at all times been recommended for the Cure of these Disorders and I have known a mixture of Galls and Gentian cure an Intermittent in which the Bark had been tried to no purpose which was probably owing to the inferior Quality of the Bark. Various Opinions have been formed with respect to the proximate Cause of Intermittents. The most antient Opinion is that the Disease is brought on by a morbid Matter lodged in the Body and the Cure consisted in evacuating this Matter. This Opinion appears to be ill founded if we attend to the following Considerations. The Fit may be prevented and oftentimes cured without any Evacuation being produced. Thus we may often prevent the Fit by giving an Anodyne a short time before this used to return. These certainly do not produce any Evacuation but rather loosen and entirely suppress the usual Evacuations. The Disease is not to be cured by Evacuations Alone. Bleeding and Purgings will never cure the Disorder and indeed are frequently hurtful. Emetics indeed frequently perform a cure without the Assistance of any other Remedy, but that they do not act by merely emptying the Stomach of its Contents is evident from this Consideration, that they will answer as well if not better when they do not produce Vomiting as when this is excited. The Bark does not increase any Evacuation and yet performs a Cure. Another Opinion is that the Cause consists in an Accumulation and Stagnation of the Humours in the extreme Vessels in the Skin. This is certainly false for the very reverse takes

takes place. The Blood is driven from the Superficies and Accumulations are formed in the Viscera. A third Opinion is that the Disease is a nervous Affection with a Spasmodic Constriction of the extreme Vessels on the Skin and hence the Cause is placed in the nervous System. This Opinion appears to be the most probable and several Circumstances tend to confirm it. The Medicines employed to cure ^{the Disease} are all of an Antispasmodic Nature. Affections of the Mind will frequently cure this Disorder and as often produce it. Nervous Diseases are often known to become intermittent and the Intermittents are frequently changed into Nervous. I knew a Gentleman afflicted with a periodical Colic which returned every day at a particular Hour. One Day at the Hour on which the Colic used to return, he was attacked with a Fit of the Ague and no Symptoms of the Colic appeared. The next day the Colic returned when he was freed from his Intermittent: and the Disorder thus proceeded from Intermittent to Colic alternately untill a Stop was put to it by the use of proper Remedies. Some have endeavoured to place the Cause in an Inertia of the Nervous Fluid, but this it is difficult to determine. The Regular return of the Paroxysms has at all times afforded Matter of Speculation. Many Opinions have been formed to account for this but none of them are satisfactory. In a late publication on this Subject it has been attempted to account for it from Habit. It is observed that Custom or Habit has a great Influence on the Animal Economy in many Cases and it is supposed that its Effects may be extended to the regular Return of Intermittents. However specious this may appear at first sight, we shall find it to be false if we consider that in order to any thing becoming habitual it must have continued for some considerable time and therefore that Habit or Custom can have no influence on the first two or three paroxysms. These however in general are the most regular and the Return of the Fits afterwards becomes irregular, whereas if this return depended upon Custom or Habit, the longer the Disorder lasted the more regular should the Paroxysms become untill at length their return should be as constant as the Motion of a Clock.

The Bark should not be used in the Cure of Intermittents untill we have

have restored the Determination of the Fluids to the Skin. We generally premise Emetics to the Use of the Bark to produce this Determination to the Surface which they will more effectually do if a dose of Laudanum be given after they have operated. This produces an universal Relaxation of the Body, increases the Circulation and hence powerfully promotes Diaphoresis and Sweat.

This is seldom perfectly produced immediately after the first Fit and hence it is customary to let the patient have two or three Fits before we give the Bark. It is also very proper to premise Neutrals or Diaphoretics. These will contribute much to shorten the Course of the Disease and render the Cure more certain. In general we may observe that the Autumnal Intermittents are generally attended with Debility and putrid Symptoms; the Vernal with Inflammatory Symptoms and may frequently be cured by Bleeding and the Antiphlogistic Regimen without the Use of any other Remedy. The Bark is best calculated for the Autumnal Intermittents. As soon as a person is seized with the Fit of an Intermittent he should be put to Bed. During the Cold Fit he should abstain from Drink as much as possible, for every thing he takes then will tend to increase the Weight, Oppression and Restlessness. If however he has an Inclination to Vomit, he should encourage it by drinking Warm Water or warm Chamomile Tea. By this Vomiting the Fluids which were before accumulated in the Viscera will be Determined to the Surface and by this the Paroxysm will be greatly relieved. During the Hot Fit the patient may drink regulated diluting Liquors. He should also take a Solution of Sal Ammoniac in some Neutral Mixture which will tend greatly to produce a Diaphoresis & shorten the Paroxysm. The Head Ache which is also very troublesome may be much relieved by throwing a Veil over the Face, which confining the Heat & perspiration is produced there which greatly contributes to the removal of the Head Ache. During the Intermission the patient should avoid the use of all Food that is very liable to ferment in the Stomach as ripe acerbent Fruits, Milk, Cabbage and all Food that is difficult of Digestion as Fish, Salted Meats, Cheese in a Word every thing that tends to produce Refrigeration as it is termed. His Diet should consist principally of Animal Broths and Vegetable Substances well boiled. If the patient is troubled with Flatulencies and pains in the Back and Loins we may give a gentle Purgative.

After

After we have prevented a Paroxysm of an Intermittent the next thing we are to do is to prevent a Relapse. For this purpose the person should take a few Doses of the Bark after the Fever has left him, and on the 7th or 8th day he should take five or six Doses of Bark as Relapses more frequently happen on the 9th Day than at any other Time. Persons inhabiting a low moist Situation are more subject to Relapses than any others. For these therefore a Change of Air becomes necessary; or if this is not practicable, they should at least confine themselves to the upper stories of the House. Relapses are likewise more common in the Autumn than in the Spring. Every thing that tends to weaken and enervate the Body disposes to them, every thing therefore of this kind sh^d be avoided. Intermittents resembling other Disorders as periodical Rheumatisms, Intermittents attacking the Face &c are all to be cured by the use of the Bark. Tissot's account of this Species of Intermittent is so excellent that from it you can never be at a loss to know it whenever you meet with it. On account of his judicious Observations on this I would recommend his Book to you as worthy of a constant perusal. "The same Cause says he which produces Intermittent Fevers, frequently also occasions disorders which return periodically at the same Hour, without shivering, without Heat and often without quickness of the pulse. Such Disorders generally preserve the Intermittions of Quotidian or Tertian Fevers but much seldomer those of Quartans. I have seen violent Vomittings and reachings to vomit with inexpressible Anxiety, the severest Oppressions, the most racking Colics dreadful palpitations and excessive Tooth Aches; pains in the Head and very often an unaccountable pain over one Eye, the Eyelid, Eyebrow and Temple of the same Side of the Face with a Coldness of that Eye and a continual involuntary trickling of Tears. I have also seen such a prodigious Swelling of the affected part that the Eye projected or stood out above an Inch from the Head covered by the Eyelid which was also considerably inflated or puffed up. All these Maladies begin precisely at the same Hour, last about the usual time of a Fit and terminating without any sensible Evacuation return exactly at the same Hour the next day or the next but one.

There is but one known Medicine that can effectually oppose this

this Sort, which is the Bark. Nothing affords Relief in the Fit and no other Medicine suspends or puts it off. But I have cured some of these Disorders with the Bark and especially those affecting the Eyes which happen oftener than the other Symptoms, After their Duration for several Weeks and after the ineffectual Use of Bleeding, Purgings, Baths, Waters, Blisters and a great number of other Medicines. If a sufficient Dose of it be given the next Fit is very mild, the second is prevented and I never saw a Relapse in these Cases which sometimes happens after the Fits of Common Intermittents seemed cured. (Tillot's Avis au peuple page 285-6).

The Bark has been unjustly accused of changing Intermittents into Dropsies, Jaundice and other Disorders owing to Obstructions of the Viscera. It is so far from producing these Disorders, that by curing the Fever, which by continuing for a long time produces them, it is the principal Means of preventing them; and when they are produced nothing is more proper for removing them than this Remedy.

The Bark is employed with the utmost Advantage in all remittent and intermittent Fevers that are accompanied with a putrid Diathesis. Dr. Coghorn in his Treatise on the Diseases of the Island of Minorca gives an account of an Intermittent Fever that prevailed there with evident Symptoms of Putrefaction. When the Bark was not given at the first Intermission or Remission the Patient generally died. He therefore carefully watched the Time of Intermission and when the Bark was then given he found that it would succeed in Cases that were reckoned desperate. In these Cases the Bark acts as a powerful Antiseptic. Whether it is useful also in putrid Fevers that are without Intermission is doubtful. It may indeed in these act as an Antiseptic in the primo Vic; but as it does not enter the Circulation it cannot extend its effects as antiseptic over the System. Dr. Hillary in the Yellow or Bilious Fever of the West Indies trusted the Cure principally to acidulated diluting Drinks and condemns the use of heating and Stimulating Medicines which are commonly employed as Antiseptics. We had a remarkable Instance of the Inefficacy of these Medicines the last time the Yellow Fever was imported into this Place. A whole Family was seized with this Disorder, Part of which was put under the

under the Care of an eminent Physician of this City who treated them as usual by giving the Bark and other Medicines that are supposed highly antiseptic. All of those however that were under his Care died, while the part of the Family that had no Medical Assistance but were left to shift for themselves and who used nothing but Fruits and other acescent Substances all recovered, not one of them dying. In the beginning of putrid Fevers if we employ the Bark it will generally prevent their farther progress. It may also be of great Service to prevent Healthy persons from taking the Contagion. After the putrefaction has advanced and has entered the Circulation Vegetable Acids with acidulated diluting Drinks are chiefly to be relied upon. They may be accompanied with the Use of the Bark. Here it will answer best in Infusion in Wine as we want only its Antiseptic Qualities without its stimulating. It proved very serviceable in the Camp fever which was common here some time ago, which I always considered as a Nervous Fever attended with a greater Degree of Putrefaction than what usually accompanies these Fevers. In this I used the Vinous Infusion or Decoction of Bark and found it prove more serviceable than any other Preparation.

When putrefaction is confined to the *primæ Viæ* the Bark may prove a Valuable Medicine, but when this enters our Body and the Fluids of the Body become affected those Medicines whose Action is confined to the *primæ Viæ* will not answer so well as those which can enter the Circulation and prove antiseptic there.

Bark is indicated in the Hemoptoe and other Hemorrhages. When these are owing to an increased Action of the Heart and Arteries the use of the Bark is dangerous. But when they are owing to Relaxation and Debility the Bark is a safe and useful Remedy. It is employed to prevent the periodical Return of Hemorrhages which it does by giving tone to the System and strengthening the relaxed Vessels.

Bark is an excellent Remedy for persons of a weak and feeble Constitution and for weakness of any particular Part. Chewing to the quantity of an Ounce a Week will be sufficient in these Cases. And in this
Way

Way it is highly useful to persons that are subject to Inflammation in the Throat upon Exposure to Cold Air. The Bark is employed in Bad Ulcers to produce good and laudable Pus; it acts here by giving Tone to the Vessels and by producing that degree of Inflammation which is absolutely necessary for the Formation of good Pus. The Bark, (probably from observing its good Effects in Ulcers) is employed in Small Pox to make the pustules fill and to bring the Disorder to an happy Issue. We should employ it in this Disease immediately after the Eruption of the pustules. It can only be employed with Safety and Advantage when the Constitution is so much weakened and debilitated that Nature is unable to struggle with the Disease and would be in danger of sinking in the Contest. Here it will raise the pulse, give Tone to the System and induce a degree of Inflammation proper for the formation of Pus. In this Case some Physicians employ Wine and even when there is a Delirium. If Petechiae and purple Spots appear we are to have immediate Recourse to the Bark. When there is an Inflammatory Diathesis or when the Action of the Heart and Arteries is too vigorous, the Use of the Bark is certainly highly improper: in this Case the Antiphlogistic Regimen and even Bleeding become necessary. The Bark has been used by some in the Suppuratory Fever, but its use here seems rather doubtful. This is brought on by the Pus being absorbed and carried into the System. The best method is to carry it off by gentle purgatives and to employ acid and antiseptic Drinks.

The Bark has been employed with Success in Scrophulous Sores and Ulcers. These are generally owing to Relaxation and Flaccidity of the Vessels in the Part and universal Relaxation of the Vessels in the System in general. The Bark by removing the partial Relaxation and by giving Tone to and strengthening the System in general often proves a valuable Remedy. But as this Disorder is sometimes not to be cured by any Medicine whatever, no wonder that the Bark sometimes fails to perform a Cure. The Bark has been said to cure Cancerous Complaints and if we would trust to the accounts given us by Physicians it has even cured real Cancers. Probably however an Ulcer of a bad Quality most have

have been mistaken for a Cancer; and in this the Bark would prove serviceable; but it is doubtful whether it ever succeeded in a single case of real Cancer. On account of its Efficacy in Ulcers, some have thought of extending the Use of the Bark to internal Ulcers and they have accordingly recommended it in Consumptions. In these however it certainly must prove hurtful on account of the inflammatory State which almost always accompanies them. It has likewise been recommended in Nephritic Complaints but in this it will answer no better than any other more simple and less stimulating Astringent. The Bark has been highly extolled for the Cure of the Gout. In our next Lecture we shall speak of the Use of Medicines that have been recommended in this Disorder.

In the Rickets if accompanied with a proper Regimen and the Use of the Bath the Bark may be employed with great advantage. In this Disease the greatest Relaxation takes place which extends even to the Bones so that they become soft and flexible. The patient can never expect to recover perfectly at least with regard to Shape and Figure: but by a proper use of Astringent Medicines with the Cold Bath and by living on solid Animal Food with a high, dry and cold Air, the Disorder may be considerably relieved.

We now come to the Pharmaceutical Treatment of the Bark. I have already observed that we should give it in Substance if possible and in as large Quantities as the Stomach will bear. When the Patient either will or cannot take the Powder we must give it in Infusion in Water or in a spirituous Tincture. By cold Water we can but extract the Astringent Virtues of the Bark but not its Bitterness. By boiling Water it loses its Astringency. By Brandy or any Spirituous Menstruum we extract the Bitterness of the Bark but not its Astringency. A Vinous Infusion is the weakest of all. With regard to the Species of Bark that has lately been introduced into Practice, it appears from some Experiments made by Dr. Kenitch, that the Red Bark as it is called is a stronger Bitter than the Common Pale Bark, it is not so powerful an astringent and is a weaker Antiseptic. It appears

appears from him that the two are not of the same Species as was at first supposed, but that they are different Species tho of the same Genus. From its being a more powerful Stimulant the Red Bark is preferable in Intermittents and perhaps in no other Case. Whenever we want the Astringent or Antiseptic Effects we must prefer the common or Quill Bark. It is said that a Species of Bark has lately been discovered in the Island of St. Lucia. A Root has lately been discovered in the Island of Surinam and St. Vincents which is said to rival and even to exceed the Bark in the Cure of Remittent and Malignant Fevers: I mean the Radix Quassia so called from a Negro named Quassi who first discovered its Virtues. From him it is likewise called the Quassi Bitter. It is the strongest and purest Bitter in Nature. It has been employed with great Success in all putrid, intermittent and Remittent Fevers. Dr. Warner a Gentleman of extensive practice in the Island of Antigua assures us that he has employed it in these Cases successfully even when the Bark had failed. He likewise observes that the Patients retain it much better on the Stomach than the Bark. In the Countries in which it is found, the Inhabitants employ it as a preservative against the dangerous Remittents so common there. It may be given either in Substance or Infusion. The Dose in Substance is ʒss to ʒj . It yields its Virtues readily either to Water or Wine. When used as a Preservative a Vinous Infusion is generally preferred.

Scorus verus or our common Calamus is a stimulant and Astringent. It approaches in Virtues to the Peruvian Bark, and was formerly employed in those Cases in which we now employ the Bark. On account of its Stimulus it is employed to excite the Appetite and assist Digestion. It is useful in Colics and Flatulencies arising from Indigestion or from Air. It may be useful in the Catarrhus Senilis and Asthma pituitosum by its Stimulus promoting Expectoration. Hallerpius tells us that he employed a Decoction of this in thin Wine for a Suppression of the Urine and assures us that he never failed of Success. In paralytic Affections it may be of Service. It may be given combined with Steel in a very relaxed Tone of the Stomach and in this way it proves most effectual.

effectually stimulating and strengthening.

Charnapitys or *Ground Pine*. This with some other Bitters forms the Gout Powder, commonly called the Duke of Portlands Powder. The Composition and Method of using this is as follows; take of the Root of Birthwort and Gentian, the Tops and leaves of Germander, of Ground Pine and Centaury each an equal Quantity; reduce them into a fine Powder: Of this one drachm is to be taken every morning fasting and nothing to be taken for an hour and a half after it. This Course is to be continued for three Months. After this $3\frac{1}{2}$ of a Drachm is to be taken for 3 Months longer. During the next 6 Months $\mathfrak{z}\text{ss}$ is to be taken every Morning. It will then be sufficient to take $\mathfrak{z}\text{ss}$ every other morning. This Course is to be continued for two Years without Interruption in order to obtain Benefit from it. The Recipe and Method of taking it were published by the Duke of Portland after he had by the use of it been freed from a painful Hereditary Gout. It was after this used by several persons and it generally proved effectual in preventing the painful return of the Gout in Inflammation of the Extremities. It is by no means a newly discovered Medicine. Bitters have for a long time been used for the Cure of the Gout even by the Ancients. They distinguished the Gout into the Sanguineous, Bilious and pituitous, from the Nature of the Fluids which they supposed produced the Disorder. In the Sanguineous they used the Scaevenger freely. In the Bilious they also bled; and in all, especially the pituitous employed griping, stimulating purges. After this they put the patient upon a Course of Stomachic Bitters which they generally gave made into an Electuary with Honey. Of this $\mathfrak{z}\text{ij}$ or the size of a Hazle Nut was to be taken every morning. This Course was to be continued for a twelvemonth. Every 2 or 3 Months a purge was to be given. They generally chose to begin this Course in Spring or Autumn. For persons of a cold Phlegmatic Habit of Body the beginning of Spring was preferred. For those of a hot, dry, bilious Habit they chose the latter End of Autumn. They did not however administer these to every Constitution indiscriminately. They allowed them to be hurtful to those of a hot, bilious Habit and supposed them to be serviceable principally to those of a phlegmatic Habit. They also employed them only in recent Cases of Gout and thought them unsafe after 5 or 6, or at most 7 years after the first Attack. In Italy a Gout Powder was for a long time famous

famous under the Name of Pulvis principis Mirandulae, the Composition of which was very much analagous to that of the Duke of Portlands Powder in England; tho they were freed from the painful appearance of the Gout in the Extremities, they were afflicted with more fatal Disorders than the Gout. Many of them died Apoplectic as happened to the Duke of Portland himself a few years after he had been freed from the pain of the Gout. Dr. Cullen observed that the same thing happened to 12 Gentlemen who were all that used it in Scotland. Dr. Gaubius observed similar Effects in those persons who used this powder in Holland. Galienus Aurelianus remarks that those persons who in his time used the bitter Eleetuary for the Cure of the Gout were generally seized with a Lethargy, Stupor and Apopleay, pleurisy, Peripneumonies &c. By the Use of Bitters the Tone of the Stomach is destroyed and it seems as if it was incapable of throwing the Gout upon the Extremities and thus it falls upon other Parts as the Brains and Lungs or Bowels. A person sometime ago appeared in England who undertook to cure the Gout radically. The Terms were that the Doctor should receive 300 Guineas one half of which was to be paid upon beginning the Course and the other half ^{at the expiration of} a Year at which time the Cure was to be completed. The late Marquis of Granby put himself under his Care, but before the expiration of the Term appointed the Marquis died Apoplectic. From this circumstance and from the length of Time necessary to perfect a cure it is probable his Medicine resembled the Duke of Portlands powder. The natural and salutary appearance of the Gout is in the Extremities in a Topical Swelling and Inflammation, nothing therefore should be attempted to remove this, unless we could at the same time entirely eradicate the Disorder. This is not to be done by Medicine. Something of the Kind may be done by a proper use of Exercise and a strict Regimen, as a milk Diet. This may sometimes cure the Disorder but it ought only to be attempted in Young persons and those of a strong and healthy Constitution. persons are generally too low and weak when advanced in years to bear this Diet. The proximate Cause of this Disorder has been long enquired after, many Opinions have been framed concerning it, but none are sufficient for they will not account for all the Phenomena which occur. The most probable is that it is situated in the Nervous System, for were it situated in the simple Solids or Fluids it could not escape the accurate Enquiries made after it. This is also supported by the Disease being

being brought on by such Things as affect the Nervous System. The Substance which particularly occasions it remains concealed and perhaps even will. This is further confirmed by the quick Transition of the Gout from one Part to another. The following Case is so remarkable that I will give it to you as it is related in the 1.st Volume of the London Medical Observations.

"M^r Major Rook Surgeon and Apothecary in upper Shadwell of about 45 years of Age, a sober, temperate Man, accustomed to no disease but the Gout, the returns of the Fits whereof had never been more frequent than once in 12 or 14 Months, About the Month of June 1752 was seized with a very severe paroxysm of the Gout. As I had known some very extraordinary effects proceeding from a Vegetable Diet in that Distemper, particularly in one Gentleman, who by a total Abstinence from all Manner of Food except Cows Milk and that without Bread had cured himself of this Disease, and who at the Time I mentioned this to my Friend was in the 13.th Year of his Milk Diet. I persuaded M^r Rook to try what Vegetables would do for him. he readily complied and entered upon it immediately, with a Resolution that if it answered his Expectation he would renounce Flesh and Fish forever. But after the most religious Abstinence from Animal Food of every ^{kind} for eleven Weeks, being visited by a gentle attack in both Feet, he returned immediately to his Animal Food. This paroxysm continued but 40 Hours; but in March 1753 was succeeded by a very severe one in both feet. The pain in his Feet, Heels and Ancles increased with great Violence for about 10 or 12 days, till at length he was in the most extreme Agonies, such as he had never felt before and such as almost made him mad. In the Height of this Extremity, the Pains (to use his own Expression) from the Feet, Heels and Ancles, flew as quick as Lightning directly to the Calves of the Legs, but remaining there not half a minute, and not in the least abating of their extreme Violence (tho' the Feet, Heels and Ancles were left entirely free from pain) from the Calves after a short stay of about half a Minute the pains ascended with the same Velocity as before to both the Thighs at the same time leaving the Calves of the Legs free: from the Thighs in less than the space of a minute and as quick as before they arrived at the Abdomen and

and after giving the patient one most severe Twitch in the Bowels they reached the Stomach: here the pains, and here the Fit ended upon the Patient vomiting up about a pint and a half of a green liquor, aqueous, but so extremely Corrosive that he compared it to the strongest Mineral Acids. This extraordinary Crisis happened at about two in the morning, immediately after the Discharge he fell asleep and slept till 7 or 8 and waked perfectly easy in every part, no Signs of the distemper remaining, but the Swelling and Tenderness of his Feet, both of which went off gradually so that in two days he was able to walk about his Business.

"The next Fit seized him in February 1754 in the common Way, but was less violent than the former and continued for about 6 Weeks, during which time he had three increased Paroxysms or distant short Fits, which held him about two hours each; in the last of which he had the same critical Discharge by Vomiting of the same Corrosive Matter, preceded by the same uncommon Symptoms as in the fit of 1753. But, mending every hour, he was able the very next day to walk and attend his Patients with more ease than after the first mentioned Fit, for the Swelling abated much sooner and in three Days disappeared.

"I have said that this last Fit was attended with three distinct paroxysms, the last of which ended as above; yet to shew the Disposition of Nature in this case, to throw off the offending Humour in this her new way, it is remarkable that in the two first of these increased Paroxysms of Pain, the patient declared to me that he never had the least Ease till he had vomited, but as there was no Translation of Pain before these Vomittings, there was none of that Corrosive Matter to be discharged; nothing but the common Contents of the Stomach was to be seen. These Vomittings however procured the patient some ease, but the Fit of the Gout went on till the third paroxysm was over, which ended in the manner related. As the Crisis in this Case is uncommon I must take notice of a Symptom or two which were no less extraordinary, in both the Fits of the Gout. A most profuse Sweat attended the patient every morning during the whole Course of the (~~Disease~~) Fits which was so offensive and at the same time his Breath so uncommonly stinking, that neither the Patient himself nor those who

waited upon him were never sensible of the like. His linnen was tinged as if with saffron and his Urine very high coloured: but upon the Critical Vomiting every one of these Symptoms disappeared with the Disease.

On the 9th of December 1755 he was attacked again in one Foot, the Symptoms however were so very mild that he took no notice of them to his family till the 12th from that day the Pain was aggravated and the swelling greatly increased by walking, and riding in a Coach. On the 17th it became extremely violent particularly in the Heel, when it instantaneously left the parts affected and in the same manner and with equal Velocity as in the two former Fits, it flew into the Calves of the Legs, Thighs and Abdomen and when it reached the Stomach it caused him to vomit the same kind of Corrosive Acid, and tho' the quantity was no more than a Teaspoonful he became perfectly well in a few days. The same Symptoms of fetid Urine and offensive Sweats attended the Patient in this short Paroxysm as in those of 1753 and 1754: the Sweat continued but two nights and the Urine fetid only 48 hours. As M.^r Rook had experienced so great and happy Effects from the former Critical Vomiting he was greatly disappointed upon finding the Quantity evacuated so small, for reason he immediately attempted to increase it by drinking 3 pints of Warm Water (which was at hand) but in vain, for neither that nor the use of his Finger could provoke to any Evacuation which was begun and finished by Nature. For tho' the Quantity evacuated was so very small, yet it was equally corrosive and produced the same effect and the Discharge must be accounted as truly critical as the others were. During the first of these fits in the Year 1752 a hard Tumour had appeared on the Side of the Metatarsus near the middle of the Right Foot which continued till after the third Critical Vomiting when it was resolved and disappeared upon the Discharge of a viscid matter like the White of an Egg, with a few small Chalk Stones from the End of the middle Toe of the same Foot. This Discharge happened about 4 or 5 Days before the Patient was seized with a regular Fit in April 1755. But it is to be remarked, that this
Last

last Fit continued 3 or 4 Weeks and went off in the common Way, without any of the Critical Discharges of Vomiting Urine or sweat, but left on the one hand two, on the other three ^{fingers} loaded with Chalk Stones, with this peculiar Symptom, that when the Weather was cold, those Fingers were affected with a most exquisite pain which was always removed by Heat. But not long after this last mentioned Fit, a large quantity of Chalk Stones were extracted from the bottom of the left Foot near the Ball of the great Toe and from time to time for about 3 or 4 Months. On the 5th of January 1750 (the Wound occasioned by the Chalk Stones being still open) he was seized with a Fever, a Fit of the Gout came on with the common Symptoms, in both Feet with frequent Teachings and Vomitings, but without bringing up more than the common Contents of his Stomach. At this Time an uncommon Arshing in the Bottom of the great Toe from whence the Chalk Stones had been extracted tormented the Patient for 5 or 6 Hours. Upon his gently rubbing the part he was very sensible of the Fluctuation of some matter and soon began to flow at first in small Quantities from the open Orifice in the Ball of the Toe. Upon pressing the part about a Teacup full of a liquid chalky Matter was collected. The next Morning the Patient made a large Opening with an Imposthume Knife which produced more than half a pint of bloody, serous Matter full of Chalk Stones, which proved as truly critical as the Vomitings of Corrosive Acid did in the Cases above mentioned for the Orifice from which the Chalk Stones first issued was very soon healed and the Gentleman continues in perfect Health. I must here make some observations resulting from the above mentioned Case. From the Pain travelling so quick it plainly appears that the Gout is a Nervous Affection for if it were carried along by means of the Circulation it could not have moved so fast. As the Vomiting of the Acid was produced immediately as the Gout arrived at the Stomach, this State of the Fluids must have been instantaneously produced. This Acid could not have been the Cause of the Disorder as we find several paroxysms went off without this Effect being produced.

Another

Another Gout Doctor has lately made his Appearance in England & Ireland and with surprising Success. As his Patients are upon putting themselves under his Care obliged to take an Oath never to divulge the Method he takes we are unable to discover the Means employed. This much he permits them to relate that the Cure is not owing to any Medicine either externally applied or taken internally. It probably is produced by Regimen and Exercise & that perhaps applied in a particular manner.

The next Substances we are to consider are Dandelion, Endive, Lettuce and Succary. These have been constantly supposed to be of a cooling Nature probably from no other reason than our employing them as Salads. They have been recommended for resolving Obstructions in the Liver and other Viscera of the Abdomen. Boerhaave, Van Swieten and others say they have employed the expressed Juice of Succory and Dandelion in these Cases with good Effects. The Succory and Dandelion are supposed of similar Virtues. To produce their Effects properly they should be taken in large Quantities and their Use should be persevered in for a considerable time. I have relieved several persons by ordering them to take a Coffee Cup full of the expressed Juice 2 or 3 times a day.

Indian Turnep in its recent State is very acrid and when taken in large Quantities it is even said to prove deleterious. Staphelin gives us a Case of a Hemiting of Blood being produced by it. Dr. Storck tells us of a Boy who was afflicted with a violent Cardialgia from eating it, of which he died. Vinegar is said to be the best antidote when it has been taken. It loses its acrimony by boiling or roasting and is then employed as Food by the Natives of this extensive Continent. When taken in a moderate Quantity it stimulates the Stomach excites Appetite and promotes Digestion and proves serviceable when the peristaltic Motion is inert and languid. On account of its Diuretic Virtues it is employed in Dropsies, and on account of its pectoral Virtues in the Asthma plicisicorum. It is likewise employed in paralytic Affections both internally and externally.

ternally. It is sometimes employed in Intermittents, when fresh from 10 to 12 Grains in a Pill for a Dose. It has Virtues only when fresh.

Masterwort afford a good Masticatory for the Rheumatic Toothache. Hoffman tells us he employed it in paralytic Affections. The Root powdered is said by the Country people in England to cure Intermittents. Mixed with Hogs lard it will cure Ringworms. It is a very acrid Stimulus and may be employed whenever such are required.

All the Kinds of Orris are very acrid. The acrimony resides principally in the Root. The Florentine Oris is a very strong Euphine, not only causing Sneezing when taken into the Nose but also Inflammation of the Nose and Head. Internally taken it proves a very strong Cathartic and is used as an Hydragogue. On this account it is recommended in the Edinburgh Medical Essays in the Dropsy and was used with Success. The Root is to be macerated in Cold Water which the Patient is to use for common Drinks. For this purpose our common Water Flag answers very well. This M^r Golden tells us he has found to be a very strong Cathartic and Diuretic.

Wine is a powerful Stimulant. The too liberal Use of it like all other Stimulants is hurtful by enervating the System and disposing to the Stone and Gout. And those persons who indulge freely in ^{the use of it in} the End pay dear for their short lived Pleasures. If used moderately it excites the Action of the Stomach raises the Spirits and banishes Sorrow and Care. But after the Use of it the person finds himself relaxed and debilitated and feels all the Inconveniences of real Disease in proportion as his Spirits were before elevated by the use of it. I am not here however to speak of its Use as a part of Diet but to consider its Virtues as a Medicine. Properly administered it may prove an excellent Medicine in many Diseases. It is useful in all Cases of Weakness and Sanguor. It is of Service in Indigestion and Weakness of the Stomach particularly in the Hypochondriac Disease. It assists Digestion by exciting the Stomach into Action upon its Contents, and thus we find nothing
more

more speedily relieves the Oppression from a full Meal than a Glass of generous Wine taken apart. Dr Cadogan thinks that wine ought not to be taken with Animal Food as it has the property of hardening it and rendering it firm, and resisting Putrefaction, but it by no means follows that it has this effect in the Body. It is an excellent Medicine and Cordial when the Strength has been exhausted by chronic Diseases. It is also excellent in some Fevers. Fevers are divided into two kinds: 1st Those which are attended with Languor and Debility, and where the Action of the Heart and Arteries is too low for the purposes of Life. 2^{ndly} The Inflammatory where the Action of the Heart and Arteries is too Vigorous and exceeds the Standard of Health. Under the former we comprehend all Nervous, Malignant and Putrid Fevers. Here Wine is an excellent Remedy, as it resists putrefaction, excites the too languid Motion of the Heart and Arteries and increases the Strength of the Patient. Claret is particularly serviceable in those Cases. Where Miliary Eruptions appear Wine properly administered so as not to heat the Body is one of the best Medicines we can employ. It is also highly useful to take off the Restlessness attending these Diseases and for this purpose it is particularly recommended by Dr Gilchrist. A Delirium and Redness of the Eyes are no uncommon Symptoms in Nervous Fevers, these are occasioned by a weakened Circulation. Wine therefore by increasing the Circulation will be of Service in these Cases. The best Criterion to know whether Wine is serviceable is to observe whether the Heat and Delirium are increased if they are it is to be no longer continued. Wine is also very useful in the last Stage of an Inflammatory Fever in which the Patient is generally weak. In the beginning the Use of Wine is improper on account of its increasing the Action of the Heart and Arteries which is already too vigorous. Wine is also employed with Advantage in the Small Pox. Here it acts much in the same manner as the Bark. With regard to the Quantity to be given, one Bottle a Day will generally be sufficient; but such persons as have been used to a large Quantity of it in common must take more than a Person who uses it sparingly or perhaps not at all in Common Diet.

Dr Whytt

Dr. Whitt used to tell us the case of an Officer labouring under a malignant Small pox who took seven Bottles of Claret a day and was by this cured of his Disorder. The Wine should generally be given in a weak Regus or in a diluted Form. It acts by supporting the Vis Vita and as an Antispasmodic & Antiseptic.

Burgundy, Claret and Rhemish are the best Antiseptics. The heating Wines as Madeira, Port, Sherry &c are best to preserve against Contagious and Epidemic Fevers. Of the Usefulness of Wine in Contagious Disorders there was a remarkable Instance during the plague at Marseilles, when the Physicians of that place being all dead it became necessary to send for a fresh Supply from Paris. These thinking Fear was the Cause of the Contagion spreading determined to keep themselves gay and cheerful with Wine. This they did and by these means preserved themselves and as many as would be prevailed on to pursue the same Method. Their preservation however depended more upon the Antiseptic Qualities of the Wine than their high Spirits.

Malt Liquors are more nutritious more acescent, more laxative and flatulent than Wine. They are very proper for the Cure and preservation from the Scurvy. Where there is a Debility of the Organs of Digestion they are extremely hurtful causing Flatulencies, Spasms and the whole Train of Evils attending Indigestions and acescent Fermentations in the Stomach.

Animal Stimulants. These are but few as Animals are made up of mild, bland Substances and are themselves of a mild Nature. Some of the secreted Fluids are however of an acrid Nature, these shall be mentioned under the Head of Evacuants. The most powerful Animal Stimulant is the

Cantharides. These are commonly employed in external Applications from their Acrimony they stimulate and inflame the Skin and in consequence of this raise Blisters. I shall here only treat of their Operation when taken internally. The Ancients with Hippocrates supposed the

the Acrimony to be lodged in the Head, Limbs and Feet and accordingly deprived them of them that they might give them with more safety, but this is a wrong Notion for the Acrimony is found to be lodged in one part as much as another. Cantharides were employed for internal purposes before they were employed externally, tho' by many they were considered as dangerous and improper for our Frame. Hippocrates employed them in Dropsical Cases and as a Purgative to promote the menstrual Discharge. They are found to have a particular tendency to the Urinary Passages and even occasion a Discharge of Blood from these parts with great Inflammation. Dr. Grainger, in the Edinburgh Medical Essays recommends a Combination of Cantharides and Alkaline Salts in the Dropsy, he likewise recommends them in inveterate Gleet. Groenvelt employed them in Ulcers of the Kidneys and Bladder in the Gout and in Calculous Concretions in the Kidneys: he always combined Camphor with them. In large Doses they are very hurtful and will even prove fatal by exciting a violent Inflammation in the Oesophagus, Stomach and Intestines. They will also occasion bloody Urine, a violent Strangury and erection of the Penis. Forestus gives us a Case of a person who from taking a large Dose of Cantharides, had a continued Erection of the Penis, a swelling of the Scrotum and a Discharge of Blood which destroyed the Patient. In moderate Doses they do not affect the Stomach and Intestines but stimulate the Urinary Passages. This seems to be owing to their being kept in a diffused State before they arrive at the Urinary Passages, where from their connection to a particular Part of the Blood they are in a manner concentrated and thus can act more powerfully. This seems to be confirmed from their not always affecting the Kidneys when given in a dilute Form, whereas gr. ss. in Substance will sometimes produce a Strangury. But even in Substance they do not always prove diuretic and when they have this Effect it is more by Chance than design. In Nephritic Cases they must be hurtful on account of the Inflammation which they excite. They are said to be useful sometimes in stopping Gleet and in the Fluor albus, which

which they do by exciting an Inflammation in the Parts; but their Effects here are doubtful as we cannot determine the Degree of Inflammation. On account of their Diuretic Qualities they have been supposed Diaphoretic and hence they have been recommended by Dr. Mead in the Leprosy, I can expect no great Effects from them in this Case. They have also been supposed expectorant and therefore were employed by Dr. Burton in the Chinough and by Dr. Lett som. Burton always employed Bark, Camphor and some Opium with them to prevent their bad Effects, which certainly were of more Service than the Cantharides. They are at best a precarious and in many Cases a dangerous Remedy and indeed they should never be used where we can get any other Remedy to answer our Purpose.

Millepedes have been employed for various disorders. Dioscorides employed them as diuretics in the Dropsy and Obstructions of the Viscera, Jaundice Boyle says the Use of them will sharpen and clear the Eyesight and will remove the first Symptoms of Cataract. They have been recommended in Suppressions of Urine and in Constrictions of the Kidneys owing to calculous Concretions, where they are supposed even to destroy the Stone.

These Insects contain a Stimulus of the same undetermined Nature as Cantharides, to which however they are vastly inferior in power. I have seen them exhibited in the Chlorosis and Scrophula for a sufficient length of Time without observing any considerable or certain Effects from them. They have been employed in low Nervous Fevers, but if they have any Effects they are imperceptible: if any Effect is produced it is entirely owing to the Wine in which the Insects are taken. They are given in Substance from ℥ss to ℥ij for a Dose or the expressed Juice of 50 or 60 Animals is swallowed in a Glass of Wine.

Cochineal possesses no great Effects as a Medicine. It is said to be diaphoretic, but very large Doses are required to produce this Effect Dr. Lister recommends them in the Ischuria. Gale considers them as Alexipharmic. Their only Use is to give an agreeable Colour to our Formule.

Vipers

Vipers have been employed for the Cure of various Disorders and our Rattlesnake also for the same. They have been employed in Disorders of the Skin as in the Elephantiasis. Mead recommends them in Leprosy. The powder, Wine and Broth of Vipers have been used in the Jaundice and other Obstructions of the Viscera. They are not entitled to a preference in these Cases as they possess no superior Virtues. Hoffman says he found himself disappointed when he used Vipers. The Volatile Salt is said to prevent the bad Effects of the Bite if taken in the Quantity of ʒi in the Breath. It has no other effect than pure Volatile Alkali would have. The Fat is said to be useful in Disorders of the Eyes. It is an Ingredient in Sir Hans Sloanes Ointment. It is also said to cure the Bite of the Animal if rubbed on the Wound. Oil of Almonds or any other Oil will answer full as well. The Broth is recommended as a high restorative and fine Nourishment. It affords an Alkalescent rich Nourishment and may be useful in relaxed weak Stomachs. The Rattlesnake is possessed of the same Virtues. We now proceed to general Characters.

Nutrientia as Stimulants. Whatever increases Motion may be considered as a Stimulant. These as adding Strength to the Solids increase their Oscillations and as increasing the Quantity of Fluids increase the Tension. They are therefore by their Action on the Stomach necessary in the Hypochondriac, Arthritic and Hysterical Complaints when the Action of the System is diminished. When there is so great an Action of the Heart and Arteries as in Inflammations they are hurtful.

Sedatives as Stimulants. These are generally in their first Operation Stimulant. Next

Acids as Stimulants. Tho' the Effects of these are Sedative, yet like other Sedatives they are very probably Stimulant in their first Operation.

Alkalines are in every respect Stimulant but are not to be considered in that sense alone. They prove a considerable Stimulus to the Animal Fibres.

Neutral

Neutral Salts are both sedative and Stimulant. Let me here repeat a Caution; never to be too free in the Use of Stimulants lest they become habitual to the Body and at length destroy the Tone of the Fibre of the whole System and in Particular of the Stomach.

We shall next treat of the Cold Bath which tho' different from all Stimulants may be properly enough brought in under this Head. The Use of the Cold Bath seems to have been coeval with Man. The earliest accounts we have of it are contained in the Writings of Homer and in the Scriptures. We learn from Virgil and Claudian that it was a common practice among the Ancient Italians and Germans to plunge their Children as soon as they were born into the Cold Water of their Rivers. This practice still prevails among some of the Northern Nations of Europe. The Russians and Finlanders after heating themselves in their Stove Rooms will plunge naked into the Snow and entirely cover their Bodies with it to render themselves hardy. Thus far however the Use of the Cold Bath was practised solely to invigorate the Body by persons in Health. The Use of it in Medicine was not known untill the Time of Hippocrates who first properly distinguished the Warm and Cold Bath and laid down some Differences between Salt and Fresh Water. The Romans who received not only their manners and Laws but also Medicine from the Greeks, received with it the Use of the Cold Bath. It was not however brought into general Use untill Antonius Musa at that time ^{the} first Physician in Rome cured the Emperor Augustus by the Use of the Cold Bath, after he had tried other Remedies & the Warm Bath without effect, of a long and tedious Illness, which from the Symptoms delivered to us by Suetonius and others appears to have been of the Hypochondriac Kind. For this purpose Antonius was raised to the Equestrian Dignity, had a Golden Ring put

put upon his Finger, received considerable presents of Money from the Senate and people of Rome, and besides a Statue was erected to his Memory, and he obtained for all the physicians an Exemption from paying Tribute. From this is derived the practice which obtains in some Universities of putting a Golden Ring upon the Finger of every Person who receives a Doctor's Degree in Medicine; and to this Day, in some Countries Physicians are exempted from paying Taxes and from Military Duty. After this time the Use of the Cold Bath became general at Rome, and the Warm Bath which was formerly much employed was entirely neglected. All Writers both Ancient and Modern have been full in Commendation of this Remedy.

I shall consider the Cold Bath under three Heads.

First. What Waters are employed, what Choice is to be made, in what manner and how long it is to be applied — Many prefer Salt Water to Fresh, the Reason of which is not very obvious; the only one that can be assigned is that the Salt will fix upon the Skin and stimulate more strongly. Salt Water may also more effectually wash off the Mucus from the Skin than fresh. That Salt does fix upon the Skin appears from this that the Skin of Children who are frequently dip't in Salt Water is salt to the Taste. Dr. Russell in his Treatise de Sabe Glandularum informs us that after his Scrophulous Patients with Ulcers had bathed in the Sea he was obliged to let them desist till the Ulcers were healed up.

When we want Water merely for its Coldness Spring and Pump Water are to be preferred as they are always colder than Sea Water. When we want a continued Stimulus applied Salt Water is to be preferred and this Case it must be suffered to dry upon the Skin without wiping it.

There are two Methods of applying the Cold Bath: 1st When the person jumps into the Water. 2nd The Shower Bath or when the Water is raised to a certain Height and let fall upon the person.

Third

There is no great difference in the Effects produced by these two Methods, except that in the Shower Bath, by raising or lowering the Machine we may increase or diminish the force of Percussion at pleasure: we may also give to the Water in the Shower Bath what Degree of Heat we please, or may add Salt when we please.

The Skin has such a Sympathy with all the ^{other} Parts of the Body, that whenever this is either agreeably or disagreeably affected, the same effect is produced in the other parts also. The Human Body is disagreeably affected upon the sudden Application of Cold Water; the Vessels upon its surface are constricted and the Blood is driven to the internal Parts, hence the external parts appear pale; the breathing becomes difficult and deep; the Blood stimulates the Heart and Arteries and the Circulation over the whole Body is increased; hence the Cold and Shivering which were produced by the Cold Water are succeeded by a Glow of Heat, the pulse becomes full and frequent, the Mind is rendered serene and cheerful and if the Application of this Remedy is continued for a sufficient length of time, the Muscles are made firm and hard and all the Functions of the Body, are performed in a better manner than before and persons are rendered much less liable to Colds and Complaints arising from sudden Changes of the Weather. We should not remain too long in the Water at a time, for in this Case Nature will not be able to overcome the Spasm and there is danger of some of the Vessels in some of the internal Parts being broken. We may know that the Application has been continued long enough, if immediately after coming out, the Body is suffused with a Glow of Heat and Redness. A proper State of the Body is necessary, that the Cold Bath may produce its proper Effects. It will be more useful when the person is not cold when he enters.

Secondly. We are in the next place to explain how the Cold Bath produces its Effects and in order to do this properly we must make some Observations on the Nature of the Body.

The

The Human Body is divided by Pathologists into 3 parts; The Fluids, Solida viva and Simple Solids. It is necessary that the Cold Bath should act upon some one of these. First of the Action of the Cold Bath upon the simple Solids. The prevailing Opinion is that the Cold Bath acts upon the Animal Frame in the same manner as Cold operates upon inanimate Bodies by constringing or condensing them and thus increasing the Cohesion and Firmness of the simple Fibres. But Cold externally applied cannot penetrate to the internal parts which retain their natural Heat tho the Surface of the Skin may be somewhat constricted and as it does not retain its Heat may be condensed. Secondly; with regard to the Fluids; Cold cannot affect them in any other manner than in so far as it affects the Vessels upon the Skin by producing a Constriction upon them. But this Effect is owing entirely to their Sensibility therefore the Action of the Cold Bath is upon the Solida viva or moving Fibres. I shall now endeavor to explain how the Cold Bath acts upon the moving Fibres.

That the Animal Functions may be performed in a proper Manner there is necessarily required a proper Tension or Tone of the Parts; for too great Laxity or too great Rigidity are equally injurious. Before I proceed to shew the Action of the Cold Bath on the Moving Fibres, I shall make a few Observations on this Tension and from it shall endeavor to explain some phenomena in our System. In the Muscular System the Fibres are kept Tense by the Weight of the parts, by their Antagonist Muscles and by the parts which they surround. The Fullness of the Bloodvessels contributes also to this Tension of the Muscles; for we observe that the Muscles become relaxed from profuse Hemorrhages by which the Vessels are emptied suddenly. Therefore the Muscular System is not only in itself tense but also owes part of its Tension to the Sanguiferous Vessels.

In the Vascular System there is also Tension not only in the Systole but also in the Diastole of the Heart, for even after Death when the Action of the Heart ceases the Arteries are contracted sufficiently to propel the Blood.

From this Tension different Effects of Venesection can be explained much more readily than from the Doctrine of Derivation and Revulsion; for it is evident that from the least Change of this Tension very evident Effects must be produced in our System. In Cases of Violent Spasm, Bleeding relieves by the Relaxation which it produces. The Ancients used to bleed untill fainting was occasioned in Inflammations of the Intestines &c. The good Effects in this Case are owing to the Universal Relaxation induced by which the Obstruction which causes the Inflammation is taken off.

But neither the extending powers of the Fibres nor the distending power in the Sanguiferous System sufficiently account for the Tension of our Frame. To these we must add the natural Contractility which is partly to be referred to Elasticity of the Fibres, but principally to the influence of the nervous Power.

This Contractility obtains only in the living Body and ceases after Death. The Tension of the Body is in exact proportion to the nervous Influence; this primary Cause of Tension varies considerably. So that Tension depends upon extending and distending powers and upon that Tonic Power of Contractility of the System. There are some parts of the Body in which the extending power has no Influence or if any, it is very different from that which it exerts in other parts. An Instance of this we have in the Stomach and Intestinal Canal; to which there are no antagonist Muscles nor any Counterbalance. The Tension therefore in this Case depends upon the Contractility and Tonic power and also in some measure upon the Distention of the Blood Vessels. This part therefore is more subject to variation than any other part of the Body.

The State of Tension in the Alimentary Canal has a considerable Influence upon the Tension of the rest of the Body. Thus if the Stomach has been used to take any Stimulus, which increases the Tone, at a certain Hour, when that Stimulus is denied the Stomach is relaxed and this Relaxation is communicated to the whole System. For Instance if a person has been used to take a Dram at a certain Time, when this Time returns he

he feels a Weakness over the whole Body. The palpitation of the Heart shews the Sanguiferous System to be affected and the Tremor of the Muscles demonstrates them to be in the like manner affected. As soon as the Dram is swallowed all these Symptoms vanish and the System recovers ^{its} Tension. This Debility or Absence of Tension is produced also when a person is denied his Food at the usual time.

In the same manner if the Alimentary Canal is distended with a small Quantity of Air the whole Body is considerably affected; as soon as the Air is expelled it recovers its former State. But as the Stomach has a great Influence on the rest of the Body and produces various Affections, so on the other hand the Stomach is variously affected by Affections of different parts of the Body, but more especially by Affections of the Surface or Skin. As this is the largest Organ of Sense it is furnished with a vast number of nerves which are easily irritated. Sanctories observes how much the State of the Mind and internal Functions depend upon the State of the Superficies. There is no part of the Body but what may be affected in various manners by this Tension and there are many appearances which can be explained only on this principle. Dr. Whytt in his excellent Book on Nervous Disorders has a Case of a Convulsive Cough which was brought on by the least Change in the Position of the Body or even by dipping the Hands or Feet in Cold Water: this can scarcely be explained except from the Change of Tension produced. A Blister applied upon any part of the Body will in a short time affect the whole System with its Stimulus. Is it not probable that this is produced by the Increase of Tension. We often see Men in Anger, who at other times are weak, perform Herculean Feats. This is scarcely explicable unless we suppose the nervous Flux increases the Tension. A person makes a full Inspiration when he attempts to lift any thing, by which the Muscles are rendered tense and their Force is increased.

Terror

Terror suddenly relaxes the Body and causes a person to lose his strength the ever so strong at other times, as if deprived of it by a Charm.

It is commonly believed that Warm Bathing of the feet produces its effects by Derivation, but its action can be much better explained if we suppose that it consists in taking off Tension, relaxing the part to which it is applied, which Relaxation from thence is communicated to the rest of the System. We may therefore on the other hand readily suppose that the Cold Bath acts by increasing the Tension; by which we know that Heat and Cold produce entirely opposite Effects. We may hence conclude that there is necessarily a Tension belonging to the Body, and when ever this errs either on the Side of Rigidity or Laxity the Body is more or less in a diseased State.

The Cold Bath is more particularly serviceable in Diseases arising from Laxity. By this the Sensibility and Irritability of the Body is increased. Women and Children whose Bodies are lax have a very irritable nervous System. They are therefore more subject to the Disorders called Nervous from which the most robust remain free. The Baron Van Swieten relates the case of a young Lady who from a particular Delicacy of the Nervous System was thrown into Convulsions by any Irritation. She was ordered to have her Legs, thighs and Abdomen kept tight with Bandages and she was by these means cured. We seldom see strong Nephritic or epileptic unless they have been affected with these Disorders in their Infancy. Medicines which take off this Irritability cure the Disease. The Bellies of Muscles because they are more lax are more sensible than the Tendons; the Intestines than the Coats of the Arteries. From what has been said it will appear that the Cold Bath acts upon the Solida vivas namely by producing a proper Degree of Tension which it seems to do by promoting the equable and just influx of the Nervous power. An Example will render this plain: In Deliquio Animi or fainting where there appears to be universal Relaxation

Relaxation, the nervous Influx into the Vital Organs is stopped whence the whole Body is affected; upon sprinkling a little Cold Water upon the Face or applying other Stimuli the Nerves are stimulated and excited into Action and the Patient is generally recovered.

We can hence perceive why Cold Bathing has at all times obtained great praise in the cure of those Disorders which are commonly called Nervous. We shall next consider in what Disorders it is to be employed and in what rejected.

In the Hysteria, Epilepsy and other Disorders of this kind where there is too great Mobility of the Body the Cold Bath produces the most happy Effects. Mobility or Irritability of the Nervous System is the most frequent predisposing Cause of these Disorders which are produced by the slightest occasional Cause. The Use of the Cold Bath in Hysteria may be inferred from this, that this Disorder more frequently occurs in warm than cold Climates and Women affected with it often find themselves better in Winter than in Summer.

The Hypochondriasis, a Disease which is frequently confounded with Hysteria is rather a Disease of Cold than of Warm Climates and when it occurs the Habit of Body inclines to Rigidity. On this Account the Cold Bath seldom proves useful in this Disorder unless in the single Case where these two Diseases are complicated.

Children are very subject to Epilepsy especially if their Habit of Body inclines to laxity, the use of the Cold Bath is therefore very good for them.

Palsy seems to arise from the improper Influx of the Nervous Power into the Muscles of the part affected. The Cause of this it is very difficult to explain. Whatever will restore this Influx will remove the Disease. The illustrious Van Swieten has Instances of persons afflicted with the Palsy being cured by an intermittent Fever coming on. As the Effects of Cold Bathing very much resemble the Paroxysm of an Intermittent this bids fair to be of service in this Case. Dr. Baynard in his Appendix to Sir John Dole's Treatise on Cold Bathing gives a very pretty Instance of its usefulness in this Complaint. This Case was related to him by Dr. Blair: A Boy of
Thirteen

thirteen Years of Age was seized with a paraplegia; various Medicines were employed for it in vain, untill he got something better by the use of the Cold Bath. By the Advice of Dr. Pitcairn the Boy was placed under a fall of Water 12 or 13 feet high repeatedly, and by this he recovered his former Health and Alacrity. Le Dran has two Instances of palsy being happily cured by Water falling from a height on the parts affected. Madness has been frequently cured by the Cold Bath, Instances of which occur in Van Helmont, Boyer and other Authors.

Physicians are not yet agreed concerning the proximate Cause of Intermittent Fevers. It appears most probably to be lodged in the Nervous System for these Fevers are produced and removed by Affections of the Mind. They sometimes resemble the Apoplexy, the Epilepsy, Convulsions and sometimes the hysterical Disease. Storck gives us the Case of a young Man whom it seized in form of an Amaurosis. Senac mentions the Case of a Woman who was taken with a fit of Loquacity whenever the Fit came on.

Boyer and Baynard have Instances of Intermittents, even of Quartans being cured by the Cold Bath. Dr. Donald Monro tells us from Dr. Marson of an Intermittent Fever being completely cured by throwing the person suddenly and unexpectedly into a pond. Rusham in his first Volume of the Constitution of the Air (page 25) has these Words:

"Nec praenitendo utique eventus, tunc temporis, Balneum frigidum commendavi; praecipue convalescentibus ab intermittente rebeli; ad fibrarum, nempe tonum restituendum et humores lentos comminuendos. Atque deinceps tandem quantum potest tale remedium, ubi vix alia proficit methodus, idque nonnunquam in pertinace Quartana. Novum hoc forsan et inauditum mihi vero probe expertum."

This Remedy has been recommended in ardent Fevers by Galen, Aretius and Alexander Trallianus; nor are there Instances wanting in later times of the use of the Cold Bath in these Fevers. Thomas Willis has given us a curious Case: A strong Young Woman laboured under a Fever with a high

high Degree of Delirium. After many Remedies had been tried to no purpose he ordered her to be thrown into the River and kept there for a quarter of an hour after she was taken out she was put to bed and a plentiful sweat coming on she was cured.

Joh. Gottf. de Hahn (not De Haen who afterwards made a Figure at Vienna) in the 10. Vol. of the Acta physico-medica describes an Epidemic which raged at Breslaw in the Spring, 1737 against which medicine had no effect. He judiciously at length used the Cold Bath by the Use of which the Disorder was happily cured. By the Use of this Remedy De Hahn himself was cured of this Disease. Joh. Sig. De Hahn Son of the former, in a Book written in the German Language on the Use of Cold Water recommends the Use of Cold Bathing in Fevers, and if the Strength of the Patient will admit advises him to be plunged into Water and that it should be applied in no other Manner.

Sipot in his Treatise on Bilious Fevers relates that he cured a Man whose Abdomen was much Distended by Cloths dipped in Cold Water externally applied.

The American Indians cure various Disorders by heating their Cabins and whilst in a Sweat throw themselves into a River, after they come out they go back again to their Cabins where they Sweat again and frequently recover, but as they employ this practice promiscuously in every Fever and every Stage of Fever, it is no wonder that it often proves fatal. We learn from Authors that the ancient Greeks and Germans employed the Cold Bath in the same manner as our Indians.

The Chronic Head Ache is a Disease which, to the reproach of Physicians often proves very tedious. This may be owing to various Causes. Cold Bathing has been for Ages recommended in this Disorder and Celsus says nothing is more useful to the Head than Cold Water. Baynard, Hoyer and others give us cases of the Efficacy of this Remedy in this Disease. Dr Bergius gives us a Case of a person troubled for a long Time with a chronic

Chronic Head Ache, who, after Setons in the Neck and innumerable other Remedies had been employed to no purpose, was perfectly cured by the Cold Bath. In chronic Rheumatism the Cold Bath is extremely useful. We know that this is not confined to the Joints but attacks different parts particularly the Head and Teeth. In these Cases the Cold Bath is as serviceable as when the Disease is confined to the Joints and often succeeds after all the other Remedies have failed.

The Cold Bath has been famous for the Cure of Arthritic Complaints from the Days of Hippocrates. Floyer and Barnard have Instances of Men who recovered by the use of this Remedy who were lame with the Gout. Bartholine gives the Case of a Danish Count who cured himself of the Gout by putting his Feet in Cold Water and even Snow. This is a precarious Remedy during the Paroxysm, as there is a Danger of the Gout being repelled into some of the interior parts and there producing many Evils. But during the Intervals there is no Danger. There is a great Similarity between the Gout and the Gravel and they are to be treated upon the same principles. Many have experienced the Good Effects of Cold Bathing in Calculous Concretions. Mercurialis tells us he was cured of the Stone in the Kidneys by bathing in the River Arno near Pisa. Bergius relates the Case of a Lady who for 20 Years had laboured under a Stone in the Kidneys by which she was become very ill, for by the constant Irritation she had acquired a great Mobility of the Nervous System. She had sometimes a Vomiting, a Constant Numbness of the Thighs with a violent pain in the small of the Back: these are pathognomonic Signs of the Stone in the Kidneys. For seven Years she used the Cold Bath and at the same time drank Cold Water, by which means all those Symptoms were removed and she afterwards lived in good Health for many Years. She discharged small Calculi in great Quantities with her urine upon drinking the Cold Water: and constantly when she used the Cold Bath the pain was aggravated for about six Weeks, after which time she grew better and she remained tolerably well.

well until the next Summer; for this remedy was used only in Summer.

A laxity of the Kidneys appears often to be the predisposing Cause of the Stone, or at least this is very soon produced after the generation of a Stone which appears to happen in the following manner. When a particle of Sand is first deposited in the Kidneys it stimulates them to evacuate it by the Urine. This irritation frequently repeated relaxes the Kidneys whence they can no longer cast off the Sand. Hence therefore Cold Bathing will be of great Service; for it not only strengthens the Kidneys in common with the rest of the System, but gives them tension, particularly from the Consent between them and the Surface of the Body. Hence the Collection and Concretion of Sand in them is prevented, and if any is already collected they are stimulated to expel it. If it does not produce this Effect it will still be of Service by rendering the Body less irritable.

An Inability of retaining the Urine may arise from various Causes. When it is owing to a Debility of the Sphincter, Cold Bathing is the only Remedy and it has been recommended in this Case by Paulus Aegineta. By retaining the Urine too long the Bladder is overstretched and is not able to void the Urine: in this Case Cold Bathing is the best Remedy. The Bladder in this Case probably labours under a Paralytic Affection. In nocturnal pollution which most generally accompanies the Hypochondriasis Cold Bathing is much recommended by Tissot. An involuntary Discharge of Semen arising from the Vesiculae Seminales is also stopped by this Remedy.

In a discharge of Mucus from the Urethra, whether succeeding to a Gonorrhoea virulenta or arising from any other Cause, the Cold Bath is the best Remedy. In this Case there appears to be a Debility of the Prostate and other Glands which secrete the Mucus. Hence we readily perceive the Use of the Cold Bath.

In chronic Colic, Cold Bathing is an excellent Remedy. Baynard gives us the Case of a Merchant who had been direfully ex-
cruciated

cruciated with the Colic and was by this become extremely thin but by the use of this Remedy he recovered his former Health and plumpness.

Stevenson in the Edinburgh Medical Essays gives Instances of the Utility of the Cold Bath in obstinate Costiveness, after other remedies have failed.

Persons who use a great load of Cloaths and other means by which the Body is kept too warm, are more obnoxious to Cold than any others. Whence they are seized with more diseases arising from Cold as Catarrhs, Coughs, Earach, Toothach, Rheumatism, Intermittent Fevers, Pleurisy and the like. To obviate this Habit, to strengthen the Body and render it less susceptible of Cold, no Medicine bids fairer for a preference than the Cold Bath. Baynard tells the Case of D.^r Cyprianus, who, by too great a quantity of Cloathing had rendered his Body so sensible to Cold that he could not walk out even in Summer without his Cloak, nor was he by these means kept free from Disorders. He was cured of this bad Practice by the Cold Bath. Bergius gives us a similar Instance of a Man who from his Youth had been used to wear a Fur Cap, by which his Head became so tender, that he could not bear the least Blast of Wind tho' ever so well covered with Cloathes and suffered the greatest Inconveniences from this Circumstance. By the Use of the Cold Bath he got relieved of this bad Habit.

The Cold Bath is very serviceable to Children not only to prevent but also to cure many of the Diseases to which they are subject. Since the Time of D.^r Harris it has been generally supposed by Physicians that the Diseases of Children were owing to an Acidity in the Primæ Viæ and hence to be cured by Magnesia &c. But this seems rather too general for by the Use of Magnesia, or other Absorbents we may in a short time remove all the Acid, but the Disease continues nevertheless. A Weakness of the Stomach and Disease of the Chylificative Viscera will, we know, generate Acidity, but this acid appears rather to be the Effect than the Cause of this Disease. To me it appears probable that most of the Diseases of Children are owing to laxity of the Solida viva in general and of the Stomach in particular and what ever will restore Strength and tension will most certainly contribute to curing

curing the Disease produced by the Want of it; and hence the Cold Bath and Bark are of more effect than all the absorbent powders we can give.

In the Rickets a Debility of the Solida Viva renders the Vessels of the periosteum and Cartilages unfit for depositing bony Matter. Cold Bathing by strengthening the Body and giving it tone removes the Cause & with it the Disease also, and is indeed the only Remedy on which we can rely. Besides the Cases already mentioned there are many others in which the Cold Bath may be used with success.

We are now to mention those Cases in which Cold Bathing is attended with dubious Effects if not absolutely hurtful.

It was observed above, that by giving Tension to the Body it prov'd serviceable in Cases of Laxity, whence it will appear on the Contrary, that it must be attended with bad Consequences where Tension and Rigidity are already too great. Hence Buxham relates the Case of a Man who from too great Use of the Cold Bath had suffered many Inconveniences of which he was cured by remedies which restored the proper Degree of Laxity to the Body.

In Phthisis pulmonalis a Disease very difficult of Cure, the Cold Bath amongst various other Remedies has been exhibited and if we may believe Authors not without Success. But a priori we should suppose the Cold Bath to be a doubtful if not a pernicious Remedy not only in Consumption but also in persons predisposed to it. Consumption is frequently brought on by an hæmoptoe and in Consumptive Habits there is always danger of an Hæmoptoe happening; hence therefore every thing that tends to drive the Blood to the Lungs must be injurious. Probably the Cold Bath has been thought useful in Consumptions from not paying proper Attention to the Disease. I have read of many Cases of persons said to labour under Consumptions and who were cured by the Cold Bath; but I much doubt that they were consumptive. We know that persons labouring under the Hypochondriasis Hysterica always complain

plain of a pain in their Breasts and suppose themselves to be really consumptive, whilst all persons almost who are really consumptive do not believe they are so. There is indeed some similarity between the two Diseases. There is an Oppression at the Breast, often a difficulty of Breathing with a slight Cough resembling that in the Consumption, and often a slight fever after Meals. To these may be added a wasting of the Body and some Degree of Laxity. In such a Case the Cold Bath is exhibited with the best Effects. In such a Case the Physician as well as the Patient will suppose the Disease to have been a Consumption. In the Consumption I would not advise the Use of Cold Bathing where any other Remedies can be applied. What has been said of Consumptions will apply also to Hemoptoe and perhaps to every Hemorrhage.

What I have hitherto said applies only to general Bathing. What are the Effects of Cold Water applied only to the Breast is not sufficiently known. It is hurtful in every Inflammation by increasing the Action of the Arteries and producing Obstruction. We may observe that these Inflammatory Disorders more generally attack the Robust and Rigid than those of a weak Constitution and of a lax Habit. Cold Bathing is therefore hurtful. We should be very careful how we recommend it to plethoric Patients. Cold Bathing is recommended by the Antients for Eruptions on the Skin. But experience does not confirm its use.

Linnaeus tells us, in the Stockholm Transactions, that the Epilepsy is almost endemic to the Inhabitants of Scania and Smolandia which he ascribes to the pernicious Custom of washing the Heads of their Children affected with the Pinea with Cold Water for by this he supposes the aerial Matter which should be expelled from the System is driven to the internal parts.

Sedatives.

Sedatives.

These in Opposition to Stimulants are such Substances as diminish the Motions of the System and the Force of the moving power. Dr Cullen has so fully treated the Operation of this Class of Medicines that I entirely refer you to him. I shall only consider some of the particular Sedatives. Many Substances may act as Sedatives and may probably differ in their Mode of Operation, but we are probably acquainted with only a few. Of these the principal one is

Opium.

This is one of the most important Articles of the Materia Medica and deserves a particular Attention; it is undoubtedly a Medicine of considerable Efficacy and power. We shall consider it as fully as the Nature of the Subject and our plan will permit, and endeavour to point out the Advantages and Disadvantages of its Use. There have at all times been very different Opinions concerning the Action and Effects of this Medicine, and many ingenious Attempts have been made to ascertain the Effects and mode of Operation of it, and there are almost as many Opinions as Writers on the Subject. The Opinions of Physicians on this Head are so contradictory, that we would almost be led to suppose that they wrote more to show their Ingenuity than to make any Additions to the Stock of Medical Knowledge. The Ancients ascribed the Action of most Medicines to a heating or cooling Quality. The greater part of them as Dioscorides, Galen &c supposed that Opium acted by its refrigerating Power. Plato, Wedelius and others on the contrary ascribed its Effects to its heating Quality. Some have combined these two Opinions and suppose it acts both by heating and Cooling, heating in its first Operation and cooling in its second. There have been considerable disputes concerning the part of Opium in which its Virtue resides.

Hoffman

Hoffman, Willis and others attribute its soporific Qualities to a certain Sulphureous principle. Oltzaine &c supposed they are owing to a volatile Alkaline salt. It is sufficient barely to mention these Opinions & it is not necessary to spend any time in shewing their Absurdity. Of more consequence are the two following Questions. 1.st Upon what part Opium principally exerts its Effects? Whether it acts first upon the Blood rarefies it and increases its Bulk, and by this distends the Vessels of the Brain & produces Compression there, by which the Nervous Influx into the different parts is prevented? or whether it acts upon and affects directly the Nerves only? 2.nd Whether it excites the Action of the Heart and Arteries and increases the Animal Heat? or whether it diminishes the action of the Heart and Arteries and diminishes the Heat of the Body.

With regard to the first Question there have been many respectable Writers on both Sides. Many ingenious Arguments have been offered in favour of the Action of Opium being upon the Blood. These are all summed up by Trallus in his Treatise on Opium. He allows that Opium may sometimes primarily affect the Nerves but supposes that it principally affects the Blood, rarefying and increasing its Bulk. If we consider the usual Quantity of Opium taken at a Dose and that the smaller part of this Quantity is active, for from Neuman's Experiments it appears that in $\frac{℥ij}{℥ss}$ of Opium not more than ʒij are possessed of any Virtues, we shall conclude that it cannot possibly have any Effect in rarefying and increasing the whole Mass of Blood which in the Human Body is said to amount from 25 to 30 pounds. Van Swieten observes that Opium is not easily soluble & remains for a long time in the Stomach; and he says it is no uncommon Circumstance after a person has slept all night after taking Opium for the pill to be thrown up next morning undissolved. Here it certainly can have no Effect in rarefying the Humours and must produce its Effects entirely by acting on the internal Surface of the Stomach. These Arguments

Arguments sufficiently refute the Notion of Opium acting by rarefying the Blood. But there are others, if possible more strong and convincing. If one grain of Opium will rarefy our Fluids, to what an amazing Bulk would two or three drachms increase them, which Quantity we know is often taken by the Turks in one Day. The Effects of Habit can be of no Service to the Favours of this Opinion, for the Habit will lessen the Effects of any Medicine on the moving Fibres, yet we know it can have no influence on the Fluids.

Galler supposes that Opium instead of thinning the Blood acts by increasing its Viscidity. But this Opinion is equally erroneous, and the same Objections may be made to it as to the other. The Favours of the former Opinion tell us that the Blood of Turks slain in Battle is much thinner than that of persons not accustomed to the use of this Drug, and they look upon this as an infallible Argument of the Action of Opium on the Blood. But granting this Fact to be true, this many difficulties may occur with regard to this being the Case, the Consequence which they endeavour to deduce from it does not at all follow, for it by no means proves that Opium dissolves the Blood. All that we can justly infer from it is that the long continued Use of Opium greatly debilitates the Organs of Chylification. It is likewise asserted that Opium when mixed with Blood drawn from the Body renders it thinner and more florid and of a shining red and hence they infer that a similar Effect is produced in the Body. But this is certainly a very erroneous Method of reasoning. But the Experiments of Dr. Whytt and Monro on Frogs place it beyond all Possibility of Doubt that the Action of Opium is on the Brain and Nervous System. A Frog will live a considerable Time and even hop about after he has lost his Heart. After taking out the Heart of a Frog, Dr. Whytt injected a Solution of Opium into his Stomach and Guts. In less than half an hour he

he seemed to be quite dead, and neither pricking, tearing nor cutting its Muscles caused any Contraction in them or any Motion in the Parts to which they belonged. Here the Opium could not, certainly, produce its Effects by mixing with the Circulation as this was destroyed by taking out the Heart. D.^r Monro indeed observes that the Opium is sometimes absorbed by the Lymphatics and carried into the Mass of Blood. He further observes that when a single drop of the Solution arrived at the Heart it instantly rendered it paralytic. The Heart of a Frog will continue to beat for some time after being taken out of the Animal. D.^r Whytt observed that upon immersing it in a Solution of Opium, this Motion immediately ceased. Opium acts not only on the Nerves in general but also on those to which it is immediately applied. The different Humours may be affected by the Action of Opium on the Organs of Sense and Motion and it is this that has given rise to the Mistake. We have now from Physiological ^{Reasoning} from the Pathological Observations of Van Swieten and the Experiments of Whytt and Monro shewn that Opium does not act by rarefying the Blood but that it produces its Effects by acting on the Nervous System.

The other Question is of more Importance; viz, whether Opium excites the Action of the Heart and Arteries or the contrary? Trallès asserts that Opium always renders the pulsation of the Heart and Arteries quicker and stronger. Waller likewise tells us that in small quantities it always accelerates the pulse, and likewise that a Dog will not be killed by any quantity of Opium we can give him. It has indeed of late been asserted that no person can be killed by Opium. Whytt and others suppose that Opium diminishes the Action of the Heart and Arteries and lessens the Circulation except in Cases of Languor and Debility where the Contrary Effect is found to take place. If we allow that

that the Action of the Heart depends upon its Sensibility and Irritability, and of this we cannot entertain a doubt, we will from Theory conclude that Opium lessens its Action and that the pulse will become slower upon giving Opium.

There appears to be a great Similarity between the Motion of the Heart and Arteries and the peristaltic Motion of the Intestines. The latter is always diminished and rendered slower by Opium and the Heart is affected as well as the Intestines in the same Manner, tho it is not so readily perceptible, probably from an inherent irritability in the Heart which renders it less liable to be affected. Dr. Whitt found that the Motion of the Heart in a Frog was sooner diminished and destroyed by injecting a solution of Opium into the Stomach and Intestines than by lacerating the Brain and Medulla Spinalis or even entirely removing it from the Body. Dr. Monro also found that the Action of Opium was extended to the Heart and Arteries and that their Motion was diminished. In a large quantity it diminishes their Action and deprives them entirely of Sensibility. Trallies tells us that he always observed the pulse become both stronger and quicker in the first Operation of Opium, but towards the Close of the Operation or when given in such quantity as to destroy Life the pulse became extremely low and weak. We must observe that Opium will have the Effect of raising the pulse in some particular Disorders as also of restoring a proper degree of Heat. This Effect does not depend upon its being a Stimulus as Trallies supposes, but is owing to the pain and anxiety upon which this Weakness of the pulse depended being removed by the sedative Virtue of the Opium. Trallies from his Theory was led to give Opium freely in Cases where debility prevailed & we need therefore not be surprized at the Effects which he found take place. Our Experiments to determine the Effects of any Medicine ought always to be made on a person in Health for by Disease the Effects of

a Medicine may be so altered as to appear entirely different from what they really are. An Instance will illustrate my meaning. Wine and Spirituous Liquors every Body will allow are in general stimulant. In some particular Cases they will prove sedative. Upon a Retropulsion of the Gout into the Stomach, the pulse which was before moderate will be greatly increased. In this Case if you give your Patient a Glass of Wine or Brandy by which the Gout is again thrown upon the Extremities the pulse will be lessened and restored to its natural Standard. Here the Wine acts as a Sedative but this Effect is produced by its acting in the first place as a Stimulus.

In general Opium renders the pulse slower and causes an Accumulation of Blood in the larger Vessels. After its Operation is over it leaves the Body more sensible and irritable, and hence the Heart and Arteries are more sensible to the Accumulation of Blood in the large Vessels and therefore the Circulation is increased. Hence we see the Reason why the pain in the Rheumatism is often increased after the Effects of an Anodyne are gone off. Dr. Jones gives us several Instances in which Opium proved Cathartic. This must have been produced by the Opium removing Spasm and leaving the Intestines more sensible to the Stimulus of the Bases. I knew a Gentleman who had for some time been used to take Opium who after leaving it off was troubled with Costiveness which could be removed only by having again recourse to the Opium. From the System being left more irritable after the Use of Opium we see that it is hurtful in Inflammations and Inflammatory Fevers attended with topical Pain.

Another Effect of Opium which is a stronger Argument of its not increasing the Action of the Heart and Arteries is that of relaxing and debilitating the oscillatory Motions of the Solids. Opium

certainly has the Effect of lessening the Heat of the Body). This is confirmed by the Testimony of many respectable Physicians. Van Swieten recommends Opium to lessen and moderate the Heat in Fevers. Likewise in the Stage in the Small Pox. Auzan after Bleeding recommends Opium to be given as a good Remedy in a pleurisy. Dr. Storck mentions its Use in Acute Fevers, ^{Dr. Boerhaave likewise mentions its use in arthritides} and also in pleurises and Peripneumonies. To these we may add an infallible proof that the Heat of the Body is not increased by Opium, viz. applying the Thermometer to the Body of a person under the Operation of an Anodyne when we will find that the Mercury instead of rising falls below the Natural Heat of the Constitution. We are now to mention the Effects which appear when Opium is given in a full Dose to persons in Health. There ensues sometime after taking it, a Cheerfulness and Serenity of Mind, Fortitude and Siveliness of Imagination. The pulsation of the Heart and Arteries is rendered slower and fuller; the Heat of the Body is rather diminished, the different Secretions are diminished except perspiration which is increased; the secreted Fluids become thicker. There is a dryness and disagreeable taste in the Mouth and Fauces; the Body is rendered costive; the Respiration is rendered slower. The Vessels on the Superficies especially about the Head and Chest appear full and distended. The Skin becomes red; there is a difficulty of Breathing. These are the Effects that are produced in nine persons out of ten. We are now to account for its Operation. Before we descend to Particulars we may observe that we can in general account for the various phenomena from its diminishing the Sensibility and Irritability of every part and from this Effect being greater in proportion to the Distance of the Parts from the Sensorium. Hence the inferior Extremities are much sooner affected by Opium than the superior parts of

of the Body. The Heart from the constant Stimulus to which it is exposed and being so near the Sensorium Commune is least affected of any part. The Cheerfulness and Serenity of Mind are occasioned by removing all disagreeable Sensations. But ^{as} in all Cases when the Spirits have been artificially raised or elevated, they are afterwards depressed in proportion as they were raised, so after the Operation of Opium is over a Languor and Debility succeed. The Turks never take a second Dose of Opium till the Effects of the first are pretty well gone off and they begin to find themselves low and dispirited. The Effects of Opium are in general Sedative, but in some persons it has quite the contrary Effect. In these it occasions the greatest Cheerfulness and rather keeps them awake than disposes them to sleep. But for one person who is thus kept awake ninety nine are lulled to sleep. The variety of its Effect on different persons must be accounted for from peculiarity of Constitution. We observe that different preparations of Opium will have different Effects upon the same person. Laudanum in general will check a Vomiting, but sometimes so far from having this Effect it rather tends to increase it. Persons will sometimes vomit upon taking a new Pill of Opium, when one that has been kept for several Weeks will have no such Effect. Aepham tells us that some people will bear diascordium that cannot touch Opium. Geoffroy tells us that he knew persons who would take a watery Solution of Opium whom a spirituous Tincture drove almost to Madness. Willis tells us that he knew Cases in which Opium brought on a total Oblivion. I must here repeat to you one Caution with regard to the exhibition of Opium from Van Swieten. If you are unacquainted with the Constitution and Habit of your Patient the best Method is to dissolve a few grains of Opium in some proper Vehicle e.g. Water; of which a small Quantity is to be taken frequently until

untill the desired Effect is produced. By these means we effectually obviate the bad Effects which might arise from an Overdose of the Opium; but if the Intervals between each dose be long we will frequently be disappointed, and our Expectations are seldom so well answered as if a full dose of Opium had been given at once. A larger quantity is taken in this way than would have been necessary had we given a sufficient Dose at first. We should never confine ourselves to any particular Quantity for a Dose; for tho' ^{the} ~~the~~ ^{gr} is commonly a sufficient dose, in some Cases as in great Pain or Irritation this Quantity can have little or no Effect and a much larger quantity will be necessary. Opium also gives Fortitude to suffer Pain and incur danger. This is owing to the Sense of Pain or danger being diminished rather than to any real Courage which it inspires the Mind with. The Turks take Opium before a Battle or Exploit to lessen the Fear of danger. Van Swieten recommends Opium to be given before performing any capital Operation in Surgery, not only to diminish the Sense of Pain, but also to lessen the Fear and make the Patient more readily submit to the Operation. The Quickness of the pulse depends upon the Sensibility of the Heart and Arteries. What ever therefore diminishes these will render the pulse slower. The Action of the Heart is not diminished like that of other Muscles. This some have endeavoured to account for by supposing that the Heart was furnished with Nerves from the Cerebellum, whilst the other Muscles of an Animal were supplied by the Cerebrum. This Theory however is wrong in every respect. The Slowness of the pulse is owing to the Relaxation that takes place in the larger Vessels, for as the Circulation in the smaller Vessels is soonest checked the Blood must necessarily be accumulated in the larger Vessels. Opium diminishes the Animal Heat. The Heat of the Body is entirely connected with the Circulation. When the Circulation is increased the Heat of the Body is augmented. But when the Action of the Heart and Arteries

Arteries is lessened, the Heat is ^{also} lessened. Therefore as Opium has the Effect of lessening the Action of the Heart and Arteries it must necessarily diminish the Animal Heat. It was likewise observed that Opium checked all the different Secretions except perspiration which was increased and that rendered the secreted Fluids thicker. The Fluids become thicker by the more fluid parts being absorbed during their stay in the different Reservoirs. Hence it is that Opium is so serviceable in Catarrhs and serous Defluxions where a thin acrid Matter irritating the Bronchia produces an almost incessant Cough. In this case by giving a dose of Opium in the Evening and lessening the Sensibility the Irritation is removed. Hence the Mucus is allowed to accumulate and acquire a proper Degree of Consistence and Mildness and is thus readily expectorated. The Thirst and Dryness of the Mouth and Fauces after taking Opium is owing to the Secretion and Excretion of the Saliva being diminished. The disagreeable Taste is owing to the Saliva from Stagnation undergoing or inclining to putrefaction.

Opium renders the Body costive. The regular excretion of the Faeces is in a great measure owing to the Sensibility of the Intestines to the Stimulus from the Bile. Opium rendering the Intestines less sensible and irritable will necessarily produce Costiveness. The next motion to Stool after taking a Dose of Opium is found to consist of white or ash coloured Faeces. This Effect we know depends upon the Bile not being properly mixed with the Faeces. We may therefore infer that Opium diminishes the Secretion of Bile. Thus the proper Stimulus to the Stomach and Intestines being removed this will tend further to produce Costiveness. From its diminishing the Secretion of Bile Opium proves extremely useful in the Cholera Morbus, as it not only lessens the Pain and violent Vomiting and purging but also lessens the too great excretion of Bile upon which the Disease depends. Opium is said sometimes to produce a difficulty in making Water or even a total Suppression

Suppression of Urine. This may be readily removed by any sudden Tersion or by applying Cold suddenly to the Bladder.

Opium renders the Respiration less frequent. Respiration becomes less frequent whenever the Irritability of the Lungs and their Sensibility to the Stimulus of the Blood passing thro' them is diminished. Hence we find a slow Respiration attends all soporose Diseases, as, Apoplexy, Lethargy &c. As the Sensibility and Irritability is diminished by Opium the Respiration becomes slower. Trallies tells us he always found the Respiration quickened by Opium; this indeed would be the Case did it increase the Circulation as he supposes. But in healthy persons it is always rendered slower. It is remarkable that in all those Cases in which Trallies tells us the Respiration was quickened, the Opium had been taken in too large a Dose, when this Symptom comes on towards the Close of the Operation. Opium distends the Vessels particularly the Veins about the Head and Face with a Sense of Fullness and Constriction. When the Irritability of the smaller Vessels is diminished the Motion of the Blood thro' them is also diminished; hence an Accumulation of Blood takes place in the larger Vessels which distends them. To this we may also refer an Experiment of Dr. Monro's who supposed the Blood possessed a certain Elasticity which he ascribed to the Air combined with it. By this the Blood always endeavours to expand itself but is counteracted by the Muscular power of the Blood Vessels; when these are relaxed the Blood rarefies and distends them.

Haller remarks that during Expiration the Veins on the Surface appear distended, blue and cylindrical; during Inspiration, collapsed, pallid and as if they contained no Blood. When the Respiration is frequent this Change oftener takes place and then it is more remarkable. When the Respiration is slower it is not so often produced but then it takes place in a greater degree each time. Opium then produces

produces this Distension and Fullness by rendering the Respiration slower. By slow Respiration the Blood has time to accumulate in the Veins, by this they are distended and occasion a Sense of Fullness and Constriction; and as the Vessels about the Head and Chest are most affected by Respiration from their being near the Lungs, the Distension in them is more remarkable. This is not as Trallius supposes from Opium determining the Blood to the Head more copiously. The Veins of the Head have fewer Valves, are larger and are capable of receiving more Blood; hence the Regurgitation of Blood during Expiration is more evident in these than in any others. The Sensibility and Expression of the Face renders a change in the State of the Vessels more evident and we may often observe a Fullness and Distension in the Face which is not visible in any other part of the Body. The Appearance of Plethora and Red Blood entering the serous Vessels from the Relaxation which takes place. The Difficulty of Breathing and Oppression at the Breast with which persons are sometimes troubled for one, two or three days after taking Opium is occasioned by a Collection of Mucus in the follicles of the Bronchio, which by Stagnation has the fluid parts absorbed becomes thicker and is converted into something like pus. This is at first difficultly thrown up, after some time becomes like pus and is readily expectorated, the difficulty of Breathing, Oppression and Infarction of the Lungs are relieved. The bad Effects of Opium in the Pleurisy when improperly and injudiciously administered before the Obstruction is resolved are produced in the same manner by a Collection of Mucus. Hence it is useful in many Cases to combine Squills with the Opium to prevent this Inconvenience. Opium alleviates Pain and solves Spasm, refreshes the Body when fatigued with Exercise or Labour by diminishing the Sensibility and Irritability of the System or of the part affected. It occasions Sleep by debilitating or relaxing the Organs of Sense and

and Motion, by taking off pain, diminishing Irritability, diminishing the Impressions on the Mind or Sensorium Commune and by rendering the Mind quiet and serene; this being in a manner deserted by the Senses, receiving no Impressions from strong Impulses from without or from violent Affections from within, desists from distributing the Nervous power to the different Organs which then do not perform their usual Functions: Sleep must then necessarily ensue. We well know that while we are busily employed in Body or Mind Sleep remains a Stranger. But how it is that Opium renders the Mind insensible we cannot explain, nor perhaps is it to be explained. Some have imagined the Operation of Opium on the Mind to be owing to a Rarefaction of the Blood compressing the Brain. If this Effect were the Case it ought always to follow upon taking Opium; no Condition is so regular in producing its Effects and acts so invariably in the same manner as mechanical Compression of the Brain. When the Brain is compressed we find Sleep, Stupor and Apoplexy are produced constantly in proportion to the degree of Compression employed. This I had an Opportunity of observing in a Boy who had been scalped & tomahawked by the Indians and had lost part of his Cranium, the Brain being covered only by the pia and dura Mater. Pressure always produced Sleep which was more or less sound according to the degree of Compression. But we find it is not always the Effect of Opium to produce Sleep. It sometimes occasions Watchfulness, Giddiness, Intoxication and Convulsions without our being able to account for such different Effects, when we endeavour to do it we only grope in the dark and know nothing about the Matter. After the Narcotic Effects of Opium are gone off the Sensibility and Irritability return by Degrees and are even increased beyond what they formerly were.

Pain which was alleviated by the Use of it returns and often with

with greater Violence. The Body feels heavy and the Mind dejected and there is frequently a pain in the Head. These Effects are owing to the Functions being injured and remaining for a time weak and unfit to perform their Offices. The Increase of pain is owing to the increased Irritability which is left after the Operation is over. When taken in large Quantities or often repeated Opium enervates the System and weakens the Animal Functions particularly those of Digestion and Chylification. The proper exercise of these and of muscular Motion depends upon the Strength and Force of the Nerves. When these suffer and are relaxed those must necessarily be weakened.

From what we have said of the mode of Operation and the Effects of Opium you will be enabled to understand in what Cases it is proper, in what particular Diseases it is to be employed and the time and manner of exhibiting it. It appears from what we have said that the Operation of Opium is exerted chiefly if not altogether on the nervous System and that it does not rarefy the Blood nor quicken the pulse.

We now come to the Diseases in which Opium is employed and are to point out the proper time of administering it.

Its principal Use is as a palliative and often an effectual Cure for painful Disorders. Pain may be considered as of three kinds as it arises, 1st From Inflammatory Distension. 2^{ndly} From Spasm. 3^{rdly} From Irritation. All pain I think may be referred to one or other of these Causes. We have an Instance of pain from the first Cause or from Inflammatory Distension in all Cases of T^opical Inflammation, in Rheumatism, Pleurisy and such like diseases. Here Opium can have little or no effect in producing a Cure. It can afford only a temporary Relief by diminishing the Sensibility of the System, tho' even this Effect is often counterbalanced by the bad Effects which it produces by leaving the Body more irritable and susceptible of pain; by causing an Accumulation in the larger Vessels which stimulates the Heart and Arteries and increasing the Irritability.

bility, the Circulation will be increased and the Inflammation and Pain much augmented. We should therefore be cautious how we order it in these Cases except on particular Occasions. In the Pleurisy or Peripneumony there is sometimes an Irritation in the Trachea which produces an incessant Cough and a thin acrid Mucus is poured out which frets and irritates the parts; a good Dose of Opium will alleviate it by rendering the Mind insensible to the Stimulus; whence it is retained in the Sollicles and acquires a proper Degree of Consistence and Mildness. It is highly proper that Evacuations should be premised to prevent its bad Effects. To hinder it from checking the Expectoration which is the only salutary Crisis, it will be proper to add *Specac.* *Squills* or some Antimonial to promote the Expectoration. In the acute Rheumatism it can answer no good purpose as it will only afford a temporary Relief and not diminish the Disease in any manner. In the Chronic its use seems to be attended with some propriety tho' even here it is seldom productive of any remarkable Effects. I am not now speaking of the Use of Opium in these Cases when combined with *Specacuantha* or *Tartar Emetic*; when given in this way it proves a powerful Sudorific and may be employed with considerable Advantage in both the Chronic and acute Rheumatism. The Toothache is often a Rheumatic Affection, and attended with Inflammatory distention; it is commonly alleviated by the external Application of Opium without any bad effects being produced; as it is applied topically its Action is not extended to the other parts of the System. It not only takes off the Sensibility of the parts but may also tend to destroy the Nerve. Opium has been used to mitigate the Pain in the Gout. We had better refrain from its Use during the Height of the Paroxysm. We are however sometimes obliged to have recourse to it when the Pain is very violent & requires a temporary relief. At the Close of the Paroxysm when the inflammatory

inflammatory Symptoms are gone off, and a disagreeable Irritation and Restlessness continues Opium will ^{surely, here} highly useful. Opium is highly useful in Suppurations which often irritates the whole System. It takes off the pain and Irritation attending it and advances the Suppuration. Upon this is founded the Use of Opium in the Small Pox in which its Use is often attended with happy Effects. Here when the patient is restless a Dose of Opium will compose him and leave Nature uninterrupted in her Endeavours. When we use Opium in this Disease we should guard against the Costiveness, which it is apt to produce by Emollient Glysters.

In the Second kind of Pain or that arising from Spasm, Opium is universally indicated. Here it is not only a Palliative but it oftentimes radically cures it. In flatulent Colics it is prudent first to open the Bowels by Laxative Glysters or Gentle purgatives. If the pain is accompanied with Heat a full, quick, hard pulse and high coloured Urine with great Weakness and Debility and the Abdomen feels sore upon being touched there is danger of an Inflammation of the Intestines having taken place; this is to be removed by very copious Bleeding and the Antiphlogistic Regimen. When there are no Symptoms of Inflammation, Opium may be administered with Safety and Advantage.

In the Cholera where there are violent Evacuations both by Stool and Vomiting attended with violent Spasms, Opium is an excellent and indeed a sovereign Remedy and our only Refuge. The patient should drink plentifully of Chicken Water or other diluting Liquors and these may likewise be injected into the Intestines by the Anus. Cloths dipped in Vinegar may be applied to the Abdomen. If by these means the discharge is not checked we must have recourse to Opium which may be given internally and injected by Glyster. In Bilious Vomiting

Vomitings the same method is to be pursued. In this, as well as in the Cholera it will be necessary to take away some Blood, in general, especially if the Patient is of a Robust and plethoric Habit of Body. Opium also diminishes the Secretion of Bile and is thus doubly useful in a Bilious Colic.

In the *Iliac Passion* Opium is useful. This is frequently owing to and is generally accompanied with Spasm. It is one of the most distressing Disorders to which the Human Frame is liable. In this our principal Indication is to evacuate the Contents of the Bowels and to remedy the Costiveness which attends it. This Costiveness is frequently produced by Spasm and unless this is allayed no Evacuation can be produced. Purgatives will have no Effect unless Opium is employed to remove Spasm. I have frequently seen the Patient tormented with swallowing Castor Oil &c when the Spasms were so violent that the Stomach could not retain a Spoonful of the most agreeable Liquor. A good Dose of Opium may here be given with propriety and Assurance of Success. We may likewise combine Opium with our Purgatives, for tho' it may, in some manner counteract their Effects, yet it will more than compensate for this by solving the Spasm. In the *Colica Pictorum* or Dry Belly Ache Opium should precede the Use of Purgatives, according to Willan and De Haen.

Opium may be employed in Spasmodic Affections of the Stomach. It should not however be used too freely, for as these mostly depend upon Acidity and Acidity, the continued Use of it will only tend to increase the Cause. It therefore can be considered only as a palliative.

Opium is an effectual Remedy in Spasmodic Affections of the Uterus. These are of three kinds. 1st Those that occur at the Menstrual

al period. 2^{ndly} During the Flow of the Lochia. 3^{rdly} Those that occur during Child Birth. First; at the Menstrual period there are frequently Spasms of the Bowels: these may be effectually relieved by Opium. Opium is likewise an effectual Remedy for those pains which occur after Labour and are called grinding pains: The Opium should be given in the beginning of the pains. When they continue for any time they are apt to produce an Inflammation of the Uterus; when this is the case, cooling Fomentations are to be applied to the Abdomen and other Remedies of an Antiphlogistic Tendency are to be made use of. We should be particularly certain that these pains are not the Consequence of any Injury done to the Uterus during Labour. The Spasmodic pains which sometimes precede the real labour pains and are commonly called false pains are most effectually relieved by Opium which does not hinder the real Labours from coming on. Opium is also used to prevent Abortion. If Labour pains come on at an improper period during pregnancy, the Woman is threatened with an Abortion. In this case we should first take some Blood from the Arm and give an Anodyne and enjoin Rest and Composure of Mind. If the pains return these Remedies are to be repeated, by these Means many Abortions have been prevented. If an Heaviness comes on without pain, a Giddiness of the Head and Swimming of the Eyes with a Change of Countenance, all our Endeavours to prevent a Miscarriage are fruitless and the sooner it happens the better.

Opium is also useful in a Paroxysm of the Nephritis; here we should first open a Vein evacuate the Bowels by Emollient Glysters which also tend to relax the parts, give Opium three times a day or twice. Emollient Fomentations should be applied to the parts most affected; these should be used whilst the patient is in bed, but he should

should also frequently be taken out of Bed and put into a Warm Bath so that the whole Body may be relaxed. To relieve the Sickness of Stomach which generally occurs we may apply a Bag filled with Mint or Lavender that has been infused or moistened in Hot Wine and Spirits. The Patient should also drink some Emollient Liqueur or an Infusion of Mallow Leaves or Roots or any other Mucilaginous Substances. The Opium should be repeated from Time to Time during the Paroxysm untill it is effectually relieved; we are afterwards to have recourse to the most approved Medicines for preventing a Return. When a small Stone falls into the Ureter or Neck of the Bladder from the Irritation it occasions it prevents the Urine being collected in sufficient Quantity to dilate the Ureters or Neck of the Bladder and when discharged carries the Stone along with it. The other Remedies which are applied and which are generally of an Antispasmodic Nature also contribute to this effect by the Relaxation they occasion.

Opium is generally employed for the Cure of Tetanus, Opisthotonos and what is commonly called the Locked Jaw; these are of a purely Spasmodic Nature and they are generally occasioned by some violent Irritation affecting the Nerves. It is often brought on by a Lesion or puncture of a Nerve and is frequently produced even by the most trifling prick of a Toe or Finger. When it is within the Reach of the Knife we should never hesitate to take off the affected part or Joint. The Disorder proves generally fatal unless the Remedies are employed in Time. Opium is the most useful Remedy and may be given internally and applied externally. In the London Medical Essays there are several Instances of a Locked Jaw coming on from the Lesion of a Nerve; these were all cured

cured by Opium. There is one Case related by M.^r Thomas White a judicious Surgeon of Manchester and since republished in a Volume of Surgical Cases (a Book which I would recommend to your attentive perusal) in which the Locked Jaw was brought on by a Wound in the Finger, in this Case Opium was given and checked the progress of the Symptoms but did not remove the Disease. The injured Joint which had not till then been taken Notice of, was amputated and Opium given with Success and the Disease removed. The Doses of Opium which are proper in other Cases will have no effect in this; the Patient will bear an incredible Quantity without the least Inconvenience. In this there is an Irritation and Convulsion of the Nervous System. There are Instances of many Drachms being taken without Relief. We should give it in such Quantity and repeat so often as to have some Effect in moderating the Symptoms.

Opium has been employed to relieve the Asthma, this is of two kinds. 1.st The Spasmodic which is owing to a Constriction of the Vessels on the surface of the Lungs and Bronchiae. 2.nd Humoral which arises from too great a Secretion or Excretion of Mucus during the Paroxysm. In the former Antispasmodics and Opium are proper, in the latter Stimulants. The former is periodical, the latter sometimes without Intermission. In the Spasmodic Asthma Opium is given to palliate and put off the Paroxysm; for this purpose it will be proper to add Squills, Ipecacuanha, or some antimonial preparation as Opium alone is apt to produce Infarction of the Lungs. These Substances will not counteract its good Effects and will prevent the bad. Sir John Floyer who was himself troubled with the Asthma and who has left an excellent Treatise superior to every Thing that has been published on this Subject as he wrote from his own

own Feelings used always to evacuate the Stomach and ~~sometimes~~ the Intestines by Emetics and purgatives and then used Laudanum in small Doses, or instead of Opium he used a Water composed of the distilled Water of Red Poppies three ounces, half an Ounce of the Syrup of Poppies, with an Ounce of Sal' prunella.

I met with a Case lately of a Gentleman who relieved himself of the Asthma by taking from 10 to 15 drops of Laudanum in the Morning & drinking after it two Cups of strong Coffee. By this he is so much relieved that he is not obliged to take Opium more than once a Week or Fort = night.

Opium is also used to relieve the Head Ache. When this is owing to a Disorder of the Stomach, Emetics, Purges and Stomachic Bitters are necessary. When it is of a Rheumatic or Arthritic Nature, the Remedies adapted for these Complaints are to be employed. When it is from Weakness and Debility, Bark, Valerian Cold Bath and Chalybeates are to be used. When it is more purely Nervous Opium is to be used and is the proper Remedy. When it returns every Day at a certain Hour, Opium given about half an Hour before it is expected will put it off, if repeated will cure it radically. We should in the Head Ache first give an Emetic and the Bark as for an Intermittent, if these do not succeed we may then give Opium combined with Specac. This will throw the Patient into a profuse Sweat and relieves the Disease. For Instances of Head Aches being cured in this Manner I refer you to Dr. Whiff's Treatise on Nervous Diseases.

The third Species of Pain is owing to Irritation; here Opium is used as a Palliative. Thus in a Cancer when the Patient is past Recovery we order an Anodyne at Night to mitigate the Pain; besides this it will contribute to the Formation of laudable Pus and thus alleviate the Disease.

It is also used to alleviate Nocturnal Pains in the Venereal Disease and to palliate the Disorder untill Mercury or some other proper Method can be employed to remove it effectually. It is also used in tedious Suppurations of the Liver, where it will afford Relief to the Patient without occasioning any Injury. It is also used to alleviate troublesome and excessive Cough in the latter Stage of a Consumption. When this is excited by pus collected in the Lungs Opium cannot afford much Relief; but in the latter Stage it is frequently produced by an Acrimony and Abrasion of the Mucous in the Trachea, here Opium proves very serviceable.

Opium has been employed both by Antients and Moderns for the Cure of Intermittents. Given in a sufficient Dose half an Hour before the Accession it prevents it for that time from coming on and if repeated will cure it entirely; here it acts as an Antispasmodic. If given too long before the Fit it will have no Effect nor has it any during the Paroxysm. Opium may also in this Case be advantageously prescribed after the Operation of an Emetic especially in the Evening to promote Perspiration and Solution of Stricture on the Surface, previous to the use of the Bark.

Opium is also used by Some in Nervous Fevers to procure Sleep and to compose the Patient, but it is seldom safe in the beginning and in the decline the Body rather requires something more stimulating than Sedatives to support the Vis Vita, as these tend to depress it. But in Cases of violent Affection we ^{may} have recourse to it; if the first Dose does not relieve we should desist from the further use of it. In this Case Antispasmodics as Camphor and the Volatile Alkali and Wine are necessary.

Opium may be used with Advantage in the Diarrhea and Dysentery after the Stomach and Bowels have been evacuated. If we give a Laxative in the Morning we may give an Anodyne in the Evening. I have frequently known Dysenteries cured with nothing else.

An Ounce of Glaubers Salts may be given in the morning, or half an Ounce may be divided into three or four Doses with a small Proportion of Tartar Emetic and a Dose of Opium may be given in the Evening combined with Ipecac. or Tart. Emetic. By this the perspiration and Determination to the Skin is promoted. By giving the Sal Catharticus divided it opens the Bowels more effectually than when given at once. If a plentiful Sweat breaks out and a continual Moisture appears on the Skin, it is a favourable Symptom and unless we produce a determination to the Skin if the Discharge be checked the Disease will return with redoubled Violence. The next day the same method must be pursued. Half an Ounce of Sal Glauberi may be divided into eight parts, and the Opium combined with Ipecac. or Tart. Emet. may be given at Night. The Glaubers Salts answers another purpose here besides opening the Bowels, it prevents the Tenesmus which is so very painful and distressing. The Tenesmus is never troublesome only when the patient cannot have a Discharge. The Laxatives will have this Effect as Castor Oil and Syrup of Marshmallows. If the Pain is very great we may add Laudanum. The milder purgatives answer much better than the acrid and stimulating. The Neutral Salts by their Sedative Quality and Castor Oil by sheathing the Intestines alleviate the Pain and increase the Evacuation by Stool better than Jalap Rhubarb and Mercury which increase the Pain and add to the Fever.

Opium is also used for the cure of the Catarrh, but here its use is ambiguous. It will be proper to combine Squills, Ipecac. or some other Emetic to promote Expectoration which will obviate the bad effects of the Opium. When it is owing to Irritation and Titillation occasioned by Acrimony or Abrasion of the Mucus, Opium is highly proper. Most recent Catarrhs are attended with Inflammatory Symptoms, it will therefore be prudent to take away some Blood which relieves the Fever and acts

as an Antispasmodic. In the Measles the Cough is the most dangerous Symptom, this is often attended with difficulty of Breathing and often occasions Inflammation in the Lungs. This is occasioned by the Eruption occupying the Fauces and Trachea; to alleviate this we must bleed and open the Body by gentle Laxatives and order our Patient to drink plentifully of diluting Liquors. We may also order a Sinectus of Oil of Almonds and Spermaceti. This allays the Cough by taking off the Irritation in the Fauces and also extends its Effects into the Trachea. If these prove ineffectual Sydenham and others have recourse to Opium for which they have been severely censured by many. Opium here acts as a palliative and by taking off the Irritation which tends to increase the Inflammation does more service than it can do harm. De Haen and Stork tell us they both used Opium with great Success. The Irritation produces a Constriction by which the secretion of Mucus and the Expectoration are prevented. Here an Anodyne by taking off Constriction promotes Expectoration.

Opium is also used in Hemorrhages, here it acts as an Antispasmodic and by diminishing the Action of the Heart and Arteries it checks the Evacuation. Trallus tells us he used it in every Case of Hemorrhage owing to Stimulus and Irritation. Whytt recommends it in every Hemorrhage owing to Pain. In the Menorrhagia Gravidarum Glysters of Warm Water with 40 or 60 Drops of Laudanum may be given with Advantage. When it is owing to Spasm and Irritation we may administer Opium freely here it will often relieve the Disease. When Hemorrhage is owing to an increased Action of the Heart and Arteries Bleeding and the Antiphlogistic Regimen will be necessary. When it is owing to Debility Opium will be hurtful by ^{adding to} the Relaxation. But in some Cases a temporary Relief is sometimes necessary when the Hemorrhage is so great as to threaten Life. In this Case Opium may be given and here it acts only as a palliative.

Palliative and after its Effects are over the Hemorrhage will return. When the Disorder is owing to Debility I would always prefer Rine to every other Remedy; but whenever the Hemorrhage is owing to Spasm and Irritation Opium may be administered freely with Safety and Advantage. It moderates and alleviates the pain and I have been successful in relieving Hemorrhages of the Uterus by Opium that had resisted every other Remedy. When these are owing to plethora or Debility Opium is only a Palliative and should be employed only in pressing Cases to give us Time to employ other Remedies to remove the Complaint effectually.

Opium has been lately introduced into practice as a Cure for the Venereal Disease in all its Stages upon the following Occasion. A Gentleman belonging to the Military Hospital of New York was afflicted with the Venereal Disease to such a Degree that it baffled all the Efforts of Medicine. Despairing of Relief he quitted New York and went to England with a view of dying among his Friends and in his own Country; his Friends at New York considered him as a Man not long to remain in this World and never expected to see him again, but to their great Surprise some Month after he returned to New York with his former Alacrity and Vigour. They were curious to know in what manner such an extraordinary Cure was performed when he gave the following account of himself. That after his return to England he took Opium in sufficient Quantity to relieve his pain and he took it in such Quantities that it was supposed he wished to shorten the period of his miserable Existence. He was surprized to find that the Ulcers put on a healthy Appearance and showed a Disposition to heal; this did not cause him to remit his former Course. He continued the Use of the Opium and was perfectly cured after some time without the use of any other Remedy. This Case excited the Attention of the Military Practitioners who made Trials of it and found it answer their Expectations. From that Time it was used in the Hospital on every Occasion and

and in every Stage of the Disorder with invariable Success. Dr. Michaelis Physician General to the Troops in the British Service assured me that no other Remedy had been employed after this period in the Hospital Department under his Care and that it did not fail in a single Instance. The Patients began with taking one or two grains two or three times a day; this Dose was gradually increased till they took ten or twelve Grains every 24 hours. They did not appear to suffer any Inconvenience from this Quantity of Opium. Dr. Schöpp Surgeon to the Anspach Regiment related a Case of a Fellow who was twice apparently cured by Mercury but it broke out again both times. He was then put upon the Use of Opium and was cured effectually. I have used Opium in the Venereal Disease by itself and have combined it with Mercury. In a Gonorrhoea I used nothing else but Opium unless perhaps a little Gum Arabic, one grain in the Morning, one at Noon and two at Night. I used it in one Case in the Pennsylvania Hospital with Success where there were Venereal Ulcers on the Penis: Opium was given internally and applied externally to the Ulcers in Solution. The following Case seems to show the Efficacy of this Remedy. A Gentleman in this City had been afflicted several Months with an Ulcer in his Groin in Consequence of a Venereal Bubo. This would not yield to all the Remedies which had been employed: Mercury had been used without Success. The Knife and the Caustic had been employed to remove the hard Edges of the Ulcer but they always grew up again. When my Attendance was desired I found him with an Ulcer the Size of a French-Crown in the Groin with ragged uneven Edges, another was making its Appearance in the Pubis. He was ordered to take Bark and Mercury and as we feared the Ulcer would degenerate into a Cancer we ordered him to take Extract of Hemlock and to foment the Ulcer with an Infusion of Sittany. He was likewise ordered to take a sufficient Dose of Laudanum every Night to ease his Pain; by these means the progress of the Disorder was checked, but the Ulcer put on no Appearance

Appearance of healing. We therefore determined to administer Opium in such Quantities as to keep him quite free from Pain. The Dose was increased till he took from ten to twelve Grains every 24 hours. In a few Days the Ulcer put on a favourable Appearance and in three Weeks was entirely healed. Since this time I have used Opium in every Venereal Complaint. When these are long continued I generally combine the Corrosive Mercury or Calomel with it. I never find that it makes the patients drowsy for as they are not conscious they take Opium they do not expect any such Effects and will not so readily yield to any Feelings of this kind. It is apt to render the Body costive, this therefore must be guarded against by gentle Laxatives.

Opium is the product or inspissated Juice of the Papaver or Poppy which grows spontaneously in the East and particularly in Egypt. This narcotic Quality is common to all the poppies, but is most remarkable in the Oriental Poppy. The best Opium comes from Egypt where it exudes from the Poppy from Orifices made with a particular Instrument. It has been long an Enquiry to discover a proper Menstruum to dissolve Opium and to correct its bad Qualities, but all the different Preparations vary in no other Respect than by weakening the Opium, but this can be more effectually done by lessening the Dose. One Grain in Substance is generally a Dose to a grown person in Health, but this dose is in some Cases insufficient.

Opium does not act so speedily in Substance as in Solution; it is therefore best to give it in Solution. We should give a large prudent Dose at first and if that does not produce the desired Effect we may give half a Dose in half an hour or before the Effects of the first Dose have gone off.

The System in a short time accommodates itself to a certain dose of

of Opium and this will then no longer produce any Effects. There are Instances of Ziz being swallowed every day for 18 Months. I do not here speak of the Turks who swallow a drachm at a time for Amusement and not only without any Inconvenience but are evidently exhilarated by it. There is one Instance of a Turk who swallowed four Ounces at a time without any other Effects than that of making him stupid and senseless, but these Symptoms soon went off after he had some Sleep. Kämpfer who lived a considerable time among the Turks, tells us that those who use Opium frequently are melancholy, sleepy and stupid, like those who use Spirituous Liquors in Abundance. May there are some instances of Persons who had been accustomed to the Use of Opium so much that when they could not procure it they perished. Hægelquist in his Travels to the East gives us an Instance of an Arabian Nobleman whose Servants had forgotten to provide themselves with Opium upon a Party of Hunting. The Master called for his Dose of Opium at the usual Hour and was soon sensible of their Neglect. He dispatched Messengers to different places to endeavour to procure some, but before any of them could return he expired. Here we have an extraordinary Instance of the Effects of Habit upon the Constitution. A person may so accustom themselves to the Use of this Drug as to perish for the Want of it.* As this is the Case Endeavours have been made to counteract the bad Effects of Opium when taken in too large a Quantity. For this purpose Acids have proved most effectual; and for this Reason we should not combine Acids with Opium for Medicinal Purposes. Nothing can be more improper than for Physicians to combine Opium with Acidulated Juleps. We should give Acids before the Patient has become so insensible as to lose the Power of Swallowing. Stimulants

* When it would have been poison to those not accustomed to its Use.

Acrid Glysters may also be injected and Sinapisms applied to the Extremities. Dr. Haller gives us an Instance of a Young Woman who from taking 10 grains of Opium fell into a Sleep which lasted 48 hours. She was recovered by tickling the Uvula and Fauces by which a Vomiting was brought on which threw up part of the Opium.

Sicuta or Hemlock. There are several Plants which go under this Name. Linnaeus to distinguish the one we here mean calls it *Conium maculatum* and continues the Term *Sicuta* to the Water Hemlock. This has been supposed to be the same as the Poison used by the Ancient Greeks to deprive their State Prisoners of Life and of which amongst others Socrates perished. But this was not our Hemlock but the *Sicuta Aquatica* which is totally different. Hemlock has always been esteemed a good Remedy in external Applications to resolve Scirrhus Tumours, but it has lately been found by Dr. Stork of Vienna to be useful internally as well as externally for the Cure of Scirrhus and Caners. Since that time there has been a great difference in the Opinions of Physicians with regard to its Utility and whilst some confirm Dr. Stork's Observations others as positively deny them. Both parties are perhaps in the right but they appear to have differed with regard to the Nature of the Disorder. To understand the Effects of Hemlock we shall here make some Observations on Cancers. What I have to say on this Subject is chiefly extracted from a Treatise which was published some years past in the Swedish Language in which the Author transmitted it to me. Few Persons have had the Experience that he has had in this Disease. He was furnished by the Swedish Government with a Sum of Money to purchase from Mr. Guy the Use of his Powder for 20 Years. He was applied to by Persons from all the Northern parts of Europe,

by J

by which he acquired a Knowledge of this Disease superior to any person now living. He had practis'd for 15 Years in these Complaints when he wrote his Treatise. He divides the Cancer into three Species; the *Geniuinus*, the *Fungosus* and the *Scrophulosus*. We shall describe each of these separately and from their History and Course endeavour to characterize them so as to distinguish the one from the other.

1.st The *Geniuinus* is the most common and appears first in the form of a *Scirrhus*, quite small, sometimes not larger than half a pea; it is hard and moveable and increases by degrees in hardness and Size. Sometimes it remains small and indolent for many Years. They increase in Size from a pea to an Almond or Hazlenut. Sometimes they resemble to the feel a small Tendon or piece of Twine. In the beginning they are smooth, as they increase they become hard, uneven, rough, indented and angular. Sometimes too they assume a Conic Figure with the point outwards, but they are in general round. They do not increase by the Communication of several Tumours as in the *Scrophulous* Cancer, but the same Tumour grows from the Size of a Pea to that of a Hazlenut, a Walnut, an Egg, a Fist and sometimes till it occupies the whole Breast. They are generally single and solitary in the same Breast with no glandular Swelling except by Accident, except the *Glandula subaxillaris* grows hard and is felt deep in the Armpit, in figure, size and hardness like the Yolk of an Egg boiled hard. While they are small and before they become fixed to the muscular Expansions they may easily be moved from one part to another. When they are near the Skin and imperceptible to the Eye and appear round, the Skin does not appear affected or discoloured. But if they are very near the Skin they soon become fixed to it which then becomes wrinkled. The Size which they acquire before they break is various, sometimes they are of the size of an Egg and sometimes they exceed the size of

of a Man's Test. When they break the Skin becomes red and painful to the Touch; it chaps and from the Edges a thin Sanies issues out; the Edges become hard uneven and reflected in Conformation and hardness like Cartilage. When extirpated and pressed between the Fingers they appear as if Sand was confined and closely compacted in them. The Sore never affords good Matter but always a thin Sanies or Ichor. All Mercurial Preparations are injurious in the beginning and they precipitate and hurry on the Growth and breaking Mineral Waters and all the Preparations of Steel are also injurious but they are less so than the Mercurials. When the Tumor begins to shoot and becomes sore or painful there is little or no Hope of discussing it, and unless it is extirpated immediately, it from that moment grows larger. It is always aggravated by Emollient and what are commonly called Discutient Applications without excepting Hemlock. When small they will continue indolent and without Pain for many Years; at other times the Pain is felt in bad Weather, and during the Menstrual Flux a shooting Pain is sometimes felt, but this seldom lasts more than a Moment. Sometimes pungent Pains are perceived in the Cancer as soon as it is formed or at least before it has acquired any sensible size. Those which are round and even like an Almond are the least painful, whilst those that resemble a Sineu or Pack Thread are very painful from the beginning before they are perceptible to the Eye or Touch. A Scirrhus which is situated in the upper part of the Breast, when the Pain tends to the Sternum and Cavity of the Thorax or to the Armpit is the most dangerous tho' it is not fixed, as the large Gland in the Armpit is soonest affected. When this is the Case every thing is useless even Extirpation itself comes too late while from the Situation of the Subclavian Vessels we cannot venture to cut upon the Gland so as to take it out entirely, unless at least till we grow bolder by experience. In this Species Hemlock will not have any good Effects. Some Physicians tell us that they have by it cured real Cancers, they,

they mean no Impoisonment but they themselves have been deieved. From the long Experience of our Author Dr Berken it appears that Hemlock is of some Use in Scrophulous Cancers or rather Scirrhi, but it is of still more Service in real Scrophula and old Venereal Ulcers as also in Affections from Indurations and Tumors of the Fat in the cellular Membrane. But in the Genuine Cancer it is hurtful. It lulls and diminishes the Sense of pain for the first Week but as long it increases and extends faster than before. If a great Quantity is given it quickens the progress of the Disorder and advances it to an open Sore many Years sooner than would have been the Case had it been left to take its common Course. It acts probably like Mercury by irritating without being able to remove the Obstruction. Dr Berken had the Extract of Hemlock sent to him from Vienna and often used it when the Disease had eluded every Remedy, and in the beginning where it was afterwards extirpated by Guys powder. He began with small Doses and increased them gradually untill he gave an Ounce in twenty four hours without any other Effect or Inconvenience but a Confusion or Giddiness of the Head. In Cancers in the Mouth and Fauces it produced a salivation like Mercury. In those Cases where Guys Powder could not be employed, as in Cancers of the Tongue, Uterus &c he used the Hemlock with the utmost attention and Circumspection, but did not observe a single Instance of Genuine Cancer being relieved by it. A Cancer is seldom or never cured when it has extended to the Armpit: of this the following Case is a Confirmation. A Person aged 40 had a Tumor in the Breast of a Conic Figure about the size of a small Egg which was loose and moveable and had no connection with the Glandular Substance of the Breast, but deep in the Armpit a Tumor was perceived like a Nutmeg, very much covered with Fat and Cellular Membrane so as scarcely to be sensible to the Touch. After the Tumor had been extirpated by Guys Powder and was so far healed that only one fourth remained to be skinned over, small
round

round Tumors not bigger than Peas or Cherry Stones occurred round the Sore; as these were removed larger ones made their Appearance not only round the Sore but on all that Part which had been newly skinned over. The Bottom and Lips of the Sore which had hitherto been of a healthy red put on a Cancerous Appearance; the Glandula subaxillaris grew bigger and harder and appeared like half an Apple with the convex side outwards. The Arm soon began to swell, the Disorder took its Course, she took the Juice and the Extract of Hemlock by the Pound without Relief. Here the Disorder appears to have been of the most virulent Nature and yet the Cause seemed to be seated in the subaxillary Gland which furnished the Sore with Cancerous Virus, and if this Gland could have been extirpated at the same time with that of the Breast there is no doubt but what it would have been cured.

In the superior part of the Breast there is but little Fat, and the Breasts themselves are in that part thin and flabby but very glandular and more covered by the Pectoralis Major. When a Tumor occurs in this part it soon becomes fixed, the Lymphatics absorb the cancerous Virus and carry it into the neighbouring Glands. Cancers of the Breast are frequently brought on by Passions of the Mind in Women of an irritable Habit of Body. By Experience we know that the Breasts have a great Sympathy with Passions of the Mind. I am not now speaking of the Effects of the agreeable passions. In nursing or lying in Women by sudden fright or Terror the Milk stagnates and forms Lumps; hence arise Tumors, Boils, Fistulas and Erysipelatous Eruptions. In those Women who had no Milk in their Breasts a sudden Fright or long continued Grief will produce Spasmodic Constriction which causes obstruction and Stagnation in the finer Vessels. We find Cancers most frequently produced by those Causes which dispose the Lymph to coagulate. If only Serum

or Crasamentum stagnates it quickly forms a Crust as tough as Leather.
 of this Polypous Concretions are a proof. When a Drop of Serum stagnates
 in the finer secretory Vessels it becomes separated from the rest of the Blood,
 if it is not soon dissolved or absorbed it becomes thicker, tough and at length
 hard from the absorption and Evaporation of the thinner Parts. Every suc-
 ceeding Drop by the Laws of the Circulation will add to it, this also grow-
 ing harder and fresh matter being brought to it continually by means of
 the Circulation the Tumor grows from an imperceptible Drop to a size
 both visible and perceptible. The Fluids, which when they first stagnated
 were mild and of the same nature with the rest of the Fluids, by length of
 time and heat assume the Cancerous Acrimony. This Virus being taken
 up by the Lymphatics and carried to the Neighbouring Glands, thus dege-
 nerates from a local Scirrhus to an Affection of the System with many Scirr-
 hi externally and internally. It is also astonishing to observe the Acrimo-
 ny of the Scler: it not only eats away the healthy and sound Skin but
 also melts away Cartilages, Blood Vessels and even Bones which vanish
 without our being able to tell what has become of them. This has been ob-
 served in local Cancers where the Fluids remained sound and were not at all
 affected, where the Cancer was afterwards cured and the System in general
 did not suffer from it. Here we cannot suppose that the Acrimony preexisted
 in the Blood. This Acrimony sometimes first appears in consequence of a
 Blow on the Tumor. It is altogether probable that the soundest Fluids when
 they come in Contact with a Cancerous Tumour then first degenerate & assume
 the Disposition and Malignity peculiar to Cancers. I do not altogether deny
 but what a Scirrhus may arise from Cancerous Matter in the Blood.
 If this is ever the case, which however is far from being my Opinion
 the Cancer must attack several Parts of the Body both internal and ex-
 ternal at the same time and here it is certainly ~~is~~ not a local Disease.
 Extirpation can in this case be of no Service unless we are so fortunate
 as to

as to find some internal Remedy which will eradicate the Cancerous Disposition from the System. There is no doubt but that the Cancer Genuinus is at first, in general, a local Affection entirely, and it may be radically extirpated by the Knife or Guy's powder without Danger of Recapse. A Scirrhus will remain indolent often for 30 or 40 Years; but this Scirrhus benignus often first becoming malignant when it is improperly managed, or from a Blow or hurt by Compression or Irritation, will then degenerate into a Cancer, the Fluids confined becoming highly acrid. When we extirpate a Cancer we should be cautious not to leave any part of it behind or it will increase and become as bad and even worse than it was before. The only sure way is to extirpate it radically either with the Knife or Guy's powder. The Composition of this remains as yet a secret but it is probably of the same nature with some other Substances that have been employed for this purpose, of the Composition of which we shall offer a Conjecture hereafter. If it should happen that some of the Cancerous Roots as they are termed should be left, the Sore will either not heal or will break out again at a longer or shorter period. It is sometimes necessary to repeat the Operation several Times from the Cancer returning in the same place. Some authors have been led to place the Cause in the Blood but this is not the Case. In my Opinion if a Cancer is radically extirpated there is no danger of its ever returning again unless it has been communicated to the adjoining Glands and then all our Endeavours will be fruitless. This however applies especially to the Cancer Genuinus; we must altogether except the Carcinomata Scrophulosa. these certainly originate from an internal Cause and are seldom a local Disease. They attack several places at once both of the internal and external Parts.

The 2^d Species is the Cancer fungosus, this chiefly occurs in lusty fat Women with large Breasts and of a lax Habit. This like the Genuinus begins with a small moveable hard Tumor, which
increases

increases much faster, is more spongy and more like a Cluster of small ones and is not so hard to the Touch as the Genuinus; but upon breaking out it appears^{to} totally different from the genuinus that it is impossible to mistake the one for the other. The Growth is very different and in comparison is very extraordinary. As the Cancer genuinus requires several years to come to its height the Fungosus scarce requires so many months and in eight or ten will grow from the size of a Nutmeg to be equal to a Mans head, and sometimes will occupy the whole Breast, with many blue or reddish blue Spots, which, when opened are found to contain blood or bloody Serum. When this Cancer breaks it opens violently and discharges large quantities of bloody Serum. From one or two of the Apertures arise Grape or Lobe-like Excrencencies which are spongy and sometimes like a Sheeps Liver and sometimes resemble the Head of a Cauliflower. It is very different from the Genuinus which is small & round, gradually eating away the neighbouring parts and is generally dry with little or no Running. The Fungosus on the contrary is luxuriant without any proper Edges and puffs up in height and size over the whole Breast and discharges such a quantity of Matter that no Dressings are sufficient to keep some of them dry. Tho' the Fungosities appear soft they are found to be hard and cartilaginous to the touch. They puff up in height or Breadth, they are sometimes strangulated at the Root by the Skin. The Subaxillary Gland is seldom affected, but it may however be affected, and when it is the Disease is incurable. Of this the following is an Instance. A married, healthy Lady, who never had Children, from a sudden Fright in the 45th Year of her Age felt a pungent Pain in her left Breast; this Pain frequently returned and she at last perceived a small moveable Tumor of the size of a pea, this was hard and increased considerably. The extract of Hemlock was

Prescribed

prescribed at first in small Doses and for some Time produced its usual Effects of mitigating the pain and shooting and the Tumour appeared as if divided but evidently grew larger: greater hopes were now entertained of Recovery when the Tumor became softer and the whole Breast became larger and was altogether converted into a fungous Cancer. It opened in three or four places at once and puffed up from these Apertures; the Patient became by Degrees emaciated; the Breast grew so enormously large as to cover the other and to lay like a Pillow on the Thorax and Abdomen. She was obliged to be lifted in a Sheet from one Bed to another. The Subaxillary Gland was at last affected and after eight Months the Patient died. Upon Dissection the Bowels all appeared in a very unhealthy state: The Uterus was found full of Cancers; the Spleen was like a Bag of black Blood, similar to that which she had daily vomited. The Cancer even in this Case appears to have been at first local and confined to the Breast and might probably have been extirpated in the beginning without Danger of Relapse. In this Case Hemlock certainly accelerated the Death of the Patient. This Species of Cancer is not confined to the Breast, but attacks the Back, Shoulder, Arms and Legs. The Genivinus is found also on the Crown of the Head, the Face and Lips. I shall here relate one other Case of the Cancer fungous chiefly on account of the Method of Cure which was found effectual for removing it. A Lady born of healthy and sound Parents had enjoyed for the greatest part of her Life a pretty good share of Health; she was of a sensible and irritable Habit of Body. From Inclination and the Persuasion of her Friends she did not suckle any of her Children; in consequence of which after every lying in she was seized with some Disorder or other, sometimes with a Pain and Swelling over her whole Body, at other times with Phlegmons or oedematous Swellings in the Legs or Abdomen. From these however she was always soon recovered; till ^{up on} the Death of her Father, which greatly affected her, she for the first time felt shooting Pains in her left Breast. These continued for

for five years, they were always worse in bad Weather or when she exposed herself to Cold or was frightened. No Scirrhus Tumor was perceptible nor did any part of the Breast appear raised above the rest, but the whole Breast appeared fuller and larger than the other. On the Side next the Arm appeared something like a Linen or Pack Thread. There was a fullness in the armpit with a pain in the arm which was constant and almost intolerable. There was also a Stiffness and Swelling in the Arm in the same Manner as in the last Stage of an incurable Cancer where the Blood Vessels are compressed by the indurated Gland in the Arm pit. It was therefore apprehended that if a real Cancer should take place it would be incurable. She was ordered Hemlock and Antimonial preparations without Relief. The Breast increased in Size, the Pain and Shooting in the upper part of the Breast towards the Armpit and Neck became more violent and the Weight of the Arm was intolerable. At length the Breast began to decrease in Size, but the Armpit became fuller and a Tumour about the Size of a Hazlenut or Nutmeg appeared under the armpit but without the Axilla. The Danger was now imminent and the only hope of Relief was to procure Young puppies to suck both Breasts particularly the affected one; this was very painful as well as disagreeable to the Patient but there was no other hopes of Assistance. She at the same time took a very strong Tincture of Antimony internally. This sucking was continued for six Weeks. the pain in the beginning and during the Sucking was very great in the Nipples and Breasts. After a fortnight's Sucking the Pain and Soreness were very much increased with a Swelling of the whole Breast, the Patient was seized with a Chilly Fit which was succeeded by a feverish Paroxysm this lasted two or three Days. A Yellowish Serum was discharged from the Nipples of both Breasts, this after some time went off and the Patient was entirely cured. This Method bears a great Analogy to that used by the Antients, who applied live Toads to draw off the Cancerous Virus and thus frequently cured the Disorder. A Treatise was some time

time ago published in the German Language on the Cure of Cancers by the Application of Toads in which we are informed that the Experiment had been made and that it had proved successful. Some Years ago I met with a Case in a British Magazine in which a Cure had been performed by this Method, we are there told that the Toads suck till they fall off and die, we are also told that the Virus becomes less hurtful to them every day. A Sign that no Virus remains is when this Application does not cause much pain. Since that time I have heard of several Cures being performed in France as well as in England and Scotland by this Method. The Toad should be put into a small Bag of fine Lawn or the Sore should be covered with a piece of Lawn before the animal is applied when it falls to sucking immediately. If it is put on the open Sore it will not suck at all. This Method is certainly worthy of our Attention and at least deserves an Experiment. If a real Cancer can be cured in this manner it confirms our Opinion that this Disease is not owing to an Acrimony of the Blood, but that a Cancer is a partial Affection and is generated in the place affected in consequence of Obstruction, Stagnation and Corruption of the Fluids contained in the Scirrhus Tumour.

3^{dly} The Cancer Scrophulosus is different from either of these. It undoubtedly owes its Origin to some internal Cause; it is probable that it is often owing to some latent Venereal Cause entailed by Parents on their Children, but so modified as no longer to produce Venereal Sores but to give rise to the Scrophula and the Carcinomata Scrophulosa. We shall here first premise a few Words on the Scrophula. We are told that some of the Inhabitants of the Alps that lie between Italy and France and particularly the Tyrolese are afflicted with Swellings of the Neck & Throat which have been called Scrophulous, but from the imperfect Description given us of them we cannot judge whether they properly come under this Denomination or not. Those Swellings and Indurations of the Glands

Glands of the Neck and behind the Ears that occur in Children and often occasion or accompany breakings out in the Head, and are often produced by Colds are of little Consequence and do not deserve a particular Attention; they either suppurate or go away of themselves, if they do not a Purge or two will carry them off: when they are tedious they may be disengaged with a Mercurial plaister. They may generally be prevented by keeping the Head clean and not suffering the Hair to grow too long or thick. If these must have the Name of Scrophula we must give them the Name of Scrophula benigna. Neither do we mean those Hardnesses and Indurations of the Glands in the Groin which occur in Boys about the Age of puberty when the Semen begins to be secreted at which time the Lymphatic Glands in the Groin will grow hard and sore, but these soon disappear; they are called by the Vulgar growing pains. Neither do we mean those Indurations of the Glands under the Chin produced by Toothache or Cold and which soon yield to the Peruvian Bark. Nor those Indurations of the Glands which accompany the Consumption and Pectus Tenuis where the Emaciation renders them more visible, unless the single Instance of Phthisis Scrophulosa. In the Elephantiasis the Glands are hard and very perceptible, but it is still doubtful whether this is not occasioned by the Scrophula; it appears sometimes to be owing to the Venereal Virus. Of this I had an Instance in a Man with Indurations all over his Body very much resembling the Elephantiasis & which were in consequence of the Venereal Disease. But by Scrophula we mean large and small Tumors in the Glands of the Groin, Armpits, under the Chin, in the Neck and Throat with sores. These Tumors are of different Colours as red, white, Copper Coloured and of a reddish blue, they are sometimes scabby like Ring Worms. They are produced by Cohabitation with impure persons or from Parents or Nurses. They are not unfrequently the Consequence of Venereal Infection; thus in a Gonorrhoea there is frequently

frequently an Induration of a Gland in the Groin which remains after the Gonorrhoea has been cured and after every Symptom of the Venereal Disease is gone off. It resists the power of Mercury, and after repeated Salivations, Baths the external and internal exhibition of Sublimate it will at length require Extirpation by the Knife or Caustic. An Appearance like a small Tendon or pack Thread is frequently perceived under the Skin, this is certainly an indurated Lymphatic the Contents of which have grown hard. If then a Scrophulous Tumor of short continuance and which was evidently brought on by a Venereal Infection, is so difficult of Cure, how much less reason have we to expect a Cure when the Disease has been handed down from Father to Son and the Virus has become concentrated. This is the Reason that Scrophulous Cancers in the Breast are cured to the utmost difficulty and it is sometimes impossible to cure them even when they are near the Muscles or Sternum. If extirpated they will break out again, hence it is so difficult to eradicate them. They may frequently be eradicated in the beginning by Mercurial Preparations, but if they have arrived at any Bigness and have acquired Acrimony and Malignity, no Medicines would be effectual to remove them; they always in the end attack the Sternum and not seldom perforate the Cavity of the Thorax when generally speaking they are incurable and every Medicine will come too late. It is very difficult to know this from the former Species and it is of the utmost Consequence to distinguish them properly as they require very different and even opposite modes of Treatment. The Scrophulous besides Extirpation requires a long and prudent Course of Mercury, both internally and externally. In the former Species this Method will not succeed and Mercury aggravates them. It is of consequence to know one Species from the other in order to form our prognosis. A genuine Cancer is a local Complaint and we may assure our patient of a Recovery if the Cancer has been perfectly extirpated and the neighbouring parts not affected

affected. In the Scrophulous the Case is widely different. Extirpation here is no Security against a relapse. The Scrophulous Cancer begins like the others with a single Scirrhus and I know no difference in the beginning but that the Scrophulous is attended with small indurated Glandular Tumours under the Arms and in different Parts of the Body and always occurs in persons of a Bad and Unhealthy State. There are also two or three Scirrhii at the same time and in the same Breast: to the Touch they are not so hard and firm as the Geniurus and they have little or no pains untill they become open Sores nor always much then. After they have advanced or broke they are all together in their Colour and appearance different. The Breast appears covered with bluish red spots and is flat and as hard and firm as a piece of Board, the Integuments of the Breast being drawn in and contracted with a Furrow in the Middle and is firmly fixed to the Muscles and Ribs, hence this Species ought with propriety be termed Cancer retractus: hence the Breasts sometimes appear as if a piece was taken out.

The Glandular substance or hardened Lymphatics appear like hard small Lumps of the Size of Peas which spread themselves up and down along the Breast hence the whole resembles a small Crab and it is probably from this Species that the rest have acquired their Name. These Lumps spread themselves up and down the Breast but chiefly to the Side towards the Axilla above the Serratus anticus major, when these Sores dry up they leave white Scars. The Arms appear as if tied fast and the Cavity of the Thorax appears contracted, hence Respiration is impeded. This Species is seldom owing to Passions of the Mind and the Patients can assign no Cause nor inform us whence or how they took their Origin: They often imagine they are produced by Blows, Contusions or Prepuce. The other Species are generally owing to Passions of the Mind and attack the most healthy persons whilst this commonly occurs in persons of weakly Constitutions with a bad State of the Humours. The Face is generally of a leaden and sallown Hue with a Redness and Swelling of the Eyes, diseased Eyelids, chaf'd Lips

Lips, a puffed up or emaciated Countenance, and Appearances like Ring
 Worms in the Hairy Scalp. There are also indurated Glands in the Throat
 Armpit or Groin; Tumours in the Skin appear and vanish; the Skin ap-
 pears hard and dry. When the Disease is at the Height the Colour of
 the Breast is like that of an Erysipelas or of a Copper Colour; there is also
 a heat and Vapour which arises from the Part which is peculiar to
 this Species. The Inflammation is always greater after an unsuccessful
 Extirpation than before. If the Disease begins in the Armpit it advances
 into the Breast; as it is moveable and leaves a straitness in the part it
 occupied it frequently affects different Parts of the Body at the same
 time. The Sores have a very different Appearance, some discharge a
 thick well matured Pus, others discharge a thin fetid black Scurf;
 some heal up whilst others remain open with white Edges resembling fat
 Bacon, in others the Edges are red and fungous, some are constantly covered
 with a dry Scab or Scurf which increases both in Height and Circumfe-
 rence unless softened by emollient Applications and made to fall off. This is
 the most malignant Kind. It sometimes extends from the Head to the Groin
 covering the whole Body; this denotes a total Depravation of the Humours.
 These Scirrhii when small are often dissolved by Mercurial Ointment
 by Warm Emollient Cataplasms. M.^r Guy dissolved many by this Me-
 thod and the Application of Warm Cow dung over the Tumor. There
 are Instances of their being removed by a long continued and strong Mer-
 curial Course as for the Venereal Disease. Of this the following is an
 Instance. A Lady was first affected with a Cancer when she was near
 her 40.th Year, she had it twice extirpated out of one Breast. After Extir-
 pation and healing of the Ulcer it broke out again and the other
 Breast was also found to be affected; it was increased to double its na-
 tural Size and was very hard, at the same time there ~~were~~^{were} indurated Glands
 about the Neck and Throat. Two Drachms of a strong Mercurial Oint-
 ment were spread upon Leather and applied over the whole Breast, this
 was

was repeated every other Day. She at the same time took Mercurials in large Quantities, by this Means several small Scirrhos were disengaged & a tightness was perceived over the whole Breast and rendered the further Application of the Ointment improper, this went off in a few Days and the Breast was restored to its natural Size, but the Scirrhous Hardness in some manner remained and on this account she returned to her former Course. A strong Solution of Sublimate on Lint was applied to the Sores this kept them clean and in some time destroyed the Cancerous Quality altogether. It is in this particular Species and this only that Hemlock is attended with advantage, and it is owing to the improper Ideas which Physicians have had concerning Cancers that they have entertained such different Opinions on the use of this Remedy; amongst these we must rank Dr. Stork himself. The following can shew the good Effects of Hemlock. A Gentleman had a cancerous Sore in his Face which extended over his Cheek and Neck; this discharged a thin foetid Ichor which gave to the Lint the Colour and Smell peculiar to Cancers. In the Month of December 1762 when no Hemlock could be procured, he was ordered to take the Peruvian Bark, Wine and Opium to ease his Pain and to apply Tincture of Myrrh to check the Discharge; he continued this Course for some Time. At the Expiration of six days it was found that the Disorder was increased rather than diminished, some Hemlock was then procured which was too young, from this however an extract was made of which he was ordered to take two grains morning and Evening, he continued this Course for some time, but received no Benefit from it. In the middle of January some more Hemlock was procured which was older; of the Extract procured from this he took six grains three times a day, the Bark and other Remedies were continued at the same time. From this time all his Symptoms became easier, he felt no pain, the Ulcer did not extend farther and he slept well without his usual

usual Dose of Opium. The Ulcer put on a more favourable Appearance with soft Edges and discharged from the whole of it instead of the acrid Ichor a well matured pus. By the middle of the Month the Ulcer looked as if it was going to heal and he was so much better that he could walk about. All his Friends flattered themselves with his speedy Recovery tho but a few Weeks before they expected to lose him. But unfortunately the Extract of Hemlock was now exhausted and they could not procure any more. From this Time the Ulcer continued to grow worse tho the Bark and other Remedies were continued all his Symptoms were aggravated until his Death which happened in three Weeks from the Time he left off the Hemlock. This Case establishes more than if the Cure had been perfect that the Relief was owing to the use of this Remedy, for as the Bark and other Remedies which he used at the same time with the Hemlock were continued after he left the use of the Hemlock off and his Symptoms were notwithstanding immediately rendered worse, it appears evidently that all the Benefit was owing to the Hemlock and that he died in all human probability from the want of it. It appears also that the Cancer was of that kind which we have entitled the Scrophulous and in which the Hemlock can be used with Safety & Success. In the two former Species it is unsucessful and hurtful. Cancers in the Breast are always owing to Scirrhus. This in the beginning is small and moveable and may easily be moved from one part to another, but afterwards by the Degrees we have enumerated arises at its Height. All Sores and Ulcers in the Breast, whether they extend more or less in Breadth or Depth with hardness and redness of the Edges or whatever disagreeable Symptoms they put on unless they are originally owing to Scirrhus never deserve the Name of Cancers. It may happen that soft Swellings and congestions beginning in the Skin or like Tumors from Fat in the Cellular Membrane or more deeply seated as Boils, Fistulas, Erysipelatous Tumors

Tumors and Rheumatic Affections of the Muscles and Congestions of Se-
 rum or Tumours or Sores from the Venereal Infection, I say it may hap-
 pen that these swellings may spread and attack the Neighbouring
 parts, but notwithstanding they appear dangerous and dreadful, they
 are not nor will they ever assume the Nature and Quality of a Can-
 cer: they likewise require a particular method of treatment. I do
 not believe that a real Cancer is ever generated from Congestion of
 Milk in the Breast, for Women who have no Milk in their Breasts
 and who never have had Children particularly barren Wives, are more
 affected with these Complaints than other Women. They are generally
 produced by violent Passions of the Mind as long continued and silent
 Grief or sudden Terror in Persons of a weak irritable Nervous System,
 or by external Violence or from ill made tight Stays or from improper
 Food, the abuse of Spirituous Liquors or a sedentary inactive Life, all
 these and others of a like Nature have brought on a Scirrhus and Can-
 cer. It has sometimes happened that a real completely formed Scirrhus
 has been dissolved in consequence of Congestions of Milk and the He-
 bis lactea lying in Women. They are most effectually prevented by
 timely marriage and bearing of Children, which the Patient suckles
 herself. It may sometimes happen that Tumors from Congestion of
 Milk and a Scirrhus may take place at the same time. The hardness
 of the former is often dissolved by resolution of the Milk which is dischar-
 ged thro' the Nipple; if this does not happen of itself it may be promoted
 by warm emollient Cataplasms; but it more frequently happens that a
 Fistula is formed and in this case the Actum Lithargerie applied
 in a poultice is the surest and most effectual in affording Relief. But
 whilst the former or the Tumour from Congestion of Milk is resolved
 the Scirrhus is converted into a Cancer. In this Case the Milk would
 be improperly accused of producing a Cancer. The best Method to prevent
 Cancerous

Cancerous Affections is by a proper Education to guard against weak Nerves and an irritable Habit of Body. If they marry at a proper time of Life they should suckle their own Children themselves, they should not use tight Stays which by compressing the Vessels prevent the proper Strength & Vigour of the Circulation in the smaller Vessels by which these are kept free from Obstruction and Congestion. This Cancerous Disposition will not be corrected if there is a Tendency to Scrophula but its appearance in the Breast may be guarded against by these Methods. As the Scrophula is an hereditary Disease it requires active Medicines to prevent its breaking out or to remove it.

When a Cancer is not radically extirpated it returns with more Violence and puts on worse appearances than at first, this appears to happen in the following manner. By the Extirpation the Scirrhus or Cancer is irritated and the confined humours are set in Motion and carried to the Neighbouring Parts by which the Disease is communicated to the Neighbouring Glands or to the whole Mass of Blood. When therefore a Scirrhus appears completely formed in the Breast we should not delay Extirpation untill it has degenerated from a small indolent Tumor to a large and painful Swelling and an open Ulcer, for by this time it may have communicated the Cancerous Virus not only to the whole of the Breast but also to the Uterus and other internal Parts. We should be very circumspect when we eradicate a Cancer not to leave any part of it behind lest it should afterwards increase and render the Case desperate. There have been at all times different Opinions with regard to the infectious Nature of Cancers, some asserting that they are whilst others deny it. The following Cases tend to show that open Cancerous Sores are infectious, at times at least, whether they are always so cannot be determined. A Woman was afflicted with a severe and insurable Cancer after sleeping twenty years in the
 same

same Bed with her Husband who had a Cancerous Sore in his Face. But the following Case, if it is true is a very extraordinary one indeed. A Lady fainted away on seeing a Cancer in her Friends Breast. The Maid in attendance to recover her from this Fit poured some Water down her Throat in which a Surgeon after dressing her Cancer had dipped his Instruments and Sponge. She was afterwards afflicted with Sores in her Mouth and Fauces which soon proved the Cause of her Death. The Sores that have been applied to Cancerous Sores are said to expire soon after they have sucked them. If the Fact is so, it confirms an Opinion that the Cancerous Virus may prove deleterious and that they may be infectious. A Tradesman of Nottingham endeavoured to relieve his Wife who laboured under an incurable Cancer by drawing off the Thieves by sucking her Nipples: Dr Becket who records the Case tells us that he soon got a violent and incurable Cancer in his upper Lip and Gum of which he died.

From the different Construction of the Breasts in Men and Women and the different Effects which the Passions have upon them we may in some Measure explain why Cancers so seldom occur in the Breasts of Men unless they are of the Scrophulous, and there are scarcely any Instances of Cancers attacking these parts in Men. Women are seldom attacked with Cancers in the Lips; ^{and Sage} these on the contrary are common to Men. These are not produced by Passions of the Mind but generally owe their Origin to small ~~in~~ considerable Pimples or rather external Affections which have been converted by Irritation and improper Treatment into Cancers, especially if there is a predisposition in the System: thus we find Critical Eruptions appearing on the Body particularly the Face in the form of Scabs Scales, Warts &c. An Obstruction is sometimes formed in the Extremity of an Exhalant Vessel, the stagnating Matter in these Cases, by length of Time and improper Treatment, especially if

if at the same time irritating Remedies are applied becomes arid and forms an obstinate Cancerous Sore. In consequence of the Humours that were confined being put in Motion open running Sores are produced. These do not only attack the neighbouring parts but at length extend to all the Humours in the Body, which are corrupted. This happens only in consequence of old, ill placed, too long neglected or improperly treated Sores of a Cancerous Nature. Cancers are not however always owing to an Acrimony of the Blood, for if this were the Case how would it be possible to cure a Cancer by Extirpation with the Knife or Guys powder.

Physicians are apt to confound Cancers and Venereal Sores, particularly in the Breast we shall therefore consider the Characteristics of these and point out how they may be distinguished from each other. It is of the utmost Importance in Practice to do this properly, for in the one we may always certainly promise Relief, which in the other is always uncertain. Venereal Cases put on various Appearances in different parts but it is chiefly in the Breast that they resemble and are mistaken for Cancers. In the Breast they are of three kinds or there are three Stages the 1st are the Ulcera purulenta cutanea, the 2nd Gangrenous the 3rd are attended with a hardness that begins in the Periosteum of the Ribs. The first are distinguished by their white Soughs which resemble fat Bacon and by the hardness that accompanies them. In the Venereal Disease the Hardness begins at or about the Nipple which becomes red and inflamed with pustules which afford Matter. Sometimes there are Blotches or Spots of fistulous Ulcers of about the Size of the small end of a Tobacco Pipe which discharge an Ichor or Sanies. The first Species is attended with little or no danger. The second Species or the Gangrenous puts on frightful Symptoms and most resembles the Disease called by Physicians *Noma*. It eats away

or rather mortifies in Depth and Breadth and will quickly consume the Substance of the Breast; they are not attended with much Pain. They are distinguished by the Softness of the Tumour. The following Case will give a proper Idea of the Disease and the Method of Cure which was effectual in removing it. A Woman about 40 Years old had a considerable Ulcer in her Breast which was supposed to be a Cancer. She had very large Breasts, and in the lower part of one of them she had an Ulcer large enough to admit the Fist of a Man; this appeared of a blackish brown Colour and looked like one mortified piece. Towards the Arm a considerable part of the Tendon of the pectoral Muscle was laid bare, the skin was of a reddish Yellow and lead Colour, the Edges appeared even and smooth and the hardness extended about half an Inch round the Edges of the Ulcer; the Glands in the Armpit appeared swelled. Observe; from the Softness of the Edges, the manner of coming on and the smoothness of the Ulcer it appeared that this was not a Cancer but a Venereal Sore: it was cured in the following manner; A strong Solution of Sublimate viz. 4 grains to an Ounce of Spirit, was applied upon Lint. The Ulcer was filled up with Lint moistened with this Spirit, a sticking plaister was applied to confine the Lint; this was renewed every day once. In a short time the mortified black flesh began to separate and the Ulcer became of a bright red Colour. The Ulcer discharged good pus and the Indurations vanished: in three Weeks the Sore was replenished with Flesh and in a Month was perfectly cured without the Use of any other Remedy either internally or externally. Similar Cases in grown persons and Children have been cured in the same manner. The sore should always be kept moist with a Solution of Corrosive Sublimate and this Medicine should at the same time be given internally; this will always check the Mortification in these Cases when the Common Antiseptics will be of no use.

The

The third Species of Venereal Ulcer or that which begins with a hard-
 ness in the periosteum of the Ribs is very uncommon. The following Cases
 will tend to make you acquainted with the Nature of the Disease and
 the Method of Cure. A Man aged 40 had a small Tumour that ap-
 peared to adhere to the Bone immediately, this increased to the Size of a
 Hazlenut; a shooting was perceived and after a few Weeks it increased
 in Height and Breadth with much Pain. One half of the Breast was
 indurated with an Elevation of the Ribs. The other part of the Breast was
 raised but was soft and moveable, the Skin was not discoloured. He ac-
 knowledged that he had had Venereal Complaints in the early part of
 his Life but that he had no Symptom of it for many Years. He was or-
 dered to use the Solution of Sublimate internally and externally. He took
 four table spoonfuls of the spirituous Solution in a day, and at the same
 time applied Compresses moistened with an aqueous Solution to the
 Swelling. In a few Days the Pain was removed and the Swelling dis-
 appeared except the original small Tumor. As it was very disagreeable
 to be confined merely to keep the Compresses moist with the Solution, mer-
 curial Ointment spread on Leather was used in the room of it. He
 still continued to take the spirituous Solution internally; by these means
 the Tumor was very much softened and diminished. It after some time
 opened and discharged a thin Matter. It at length degenerated
 into a Fistula which was cured by the preparations of Lead. The Ribs re-
 turned to their former Position — Much then will depend on the judg-
 ment of the Physician in these Cases and he should try Mercurials
 with much Circumspection. If he commits an Error and does not soon
 discover it he will do irreparable Mischief. In a Scrophulous Cancer
 if he trusts to Extirpation alone he will only aggravate the Disorder
 unless he at the same time gives Medicines internally to eradicate the
 Disease totally from the System.

Cancers

Cancers in the Tongue do not often occur; when they do, they may be distinguished by their hardness: this however can scarcely be felt and not described. The external Appearance may do something towards distinguishing them, but after all the Touch is the best Criterion. Cancerous Sores in the Tongue are red and of one Colour, except the blueness of some parts which is owing to the Varicose Veins. When far advanced they appear rough with fissures or Incisions. Round the fissures appear many Tubercles with considerable hardness. The Venereal Sores are soft to the Touch, they are sometimes rough when they have an adipose appearance. They appear internally of a yellowish red and have a whitish Discharge verging towards Green resembling the Discharge in a Gonorrhoea. The difference of Colour is owing to the different Consistence of the Sanies. These Ulcers are sometimes of the Gangrenous kinds when they are distinguished by their softness and their colour of a dirty brown; they prove fatal in a short time unless treated as they ought to be. The following case will tend to make the Disease familiar to you. A Young Gentleman was supposed to have a Cancer in his Tongue, this was treated accordingly with Hemlock internally and a Gargle of a Decoction of Hemlock externally, but without advantage. More than a fourth part of his Tongue was destroyed as if cut away with a Knife. The patient could not speak, and even Liquids were swallowed with Difficulty: he became emaciated, his Countenance was pallid, his Cheek Bones high, he had a fetid Breath, a hectic Fever and a continual Salivation as if from Mercury, tho he had not taken a Grain of it. The Ulcer appeared of a dark brown was soft to the Touch and not very painful; upon enquiry it was found that he had had a Gonorrhoea and Bubo, which to Appearance had been radically cured. From this and the Appearance of the Ulcer and the

rapid

rapid progress that it had made it was judged to be a Venereal Case & that it would admit of a cure. This was effected in three Weeks by pills of Calomel taken internally and dressing the Sore with Lint moistened with a Solution of Corrosive Sublimate. It was remarkable that when the Sore was filled with Lint the patient could speak so as to be understood but when this was removed he could not articulate a Syllable. When the patient took Victuals the Sore was filled with dry Lint when he could swallow with ease as soon as the Repast was finished the Lint moistened with the strong Solution of Corros. Sublimate was again applied. By these means the Sore was soon replenished with flesh and in three Weeks was entirely cured leaving only a trifling bend or crookedness on one side. From this it is evident that it is of the utmost consequence to distinguish properly between Cancerous and Venereal Sores, for as certainly as Mercury relieves or cures the one Disease it aggravates the other. It is remarkable how Physicians have confounded these. Dr. Aken-side is an Instance of this in a piece on Cancers in the Transactions of the Royal College of Physicians at London. He tells us that he found Hemlock would mitigate the pain in some Cases & sometimes he experienced the most happy Effects from Sublimate and occasionally he found the Peruvian Bark of Service, hence he was led to try the Effects of the three combined or at least to administer them at the same time and he tells us they were attended with great Success and how fortunate he was to discover a Remedy to cure Cancers in the Tongue and Lips especially when recent, for when they were old he found his Remedy ineffectual. He particularly describes an Ulcer in the Tongue an Inch in length of a white Colour and another in the under Lip attended with Heat and Pain and were very foul with Fissures which appeared of a brown Color and discharged matter of a yellowish green Colour. Both he tells us were cured by a Combination of these three Remedies, tho

the the Sublimate deserves the most credit of the Cure, for this was given in
 1/4 of a Dose twice a Day. 'Tis evident that these were of the Venereal
 kind, had they been real Cancers they would have been aggravated by
 the Mercury. It is astonishing how Dr. Stork falls into the same Error even
 in his late publication on the Cure of Cancers by the Glammula Jovis. He
 relates Cases which from his own account appear to be the Sues with Ul-
 cers on the Lips and Face & which he calls Cancers and cures them spee-
 dily with the powder of the Glammula Jovis. Cancers on the Lips &
 Face may be distinguished from Venereal Ulcers by their coming on gra-
 dually and slowly, In the beginning they occupy a small space and appear
 like small Warts or uneven Scales, sometimes with a perceptible hardness
 in the very Substance of them; in their inner Part they appear dry and
 red; if they are not red they are of one Colour, they never have yellow or
 white Sloughs. The nervous Papillae appear elevated like hard straight Bris-
 tles; in others they appear only as dry white elevated parts. If they tend much
 inwards they have hard reflected Edges, if they are only superficial they
 are without proper Edges and appear like Warts with erect Bristles. They
 discharge a thin Sanies. Some appear thorny, like the Spur of a Cock
 with a little Soreness and Inflammation at the Basis. 'Tis seldom that
 persons apply for Relief till they are incurable because at first they do
 not appear to them of much Consequence. The Venereal Ulcers puff up
 with soft, spongy, elastic Edges and increase as much in a few Weeks as
 Cancers do in as many Years; this is a pathognomonic Symptom and
 it never takes place but in Venereal Ulcers; they have a foul Disa-
 greable Appearance which greatly alarms the Patient. Cancers in
 the Lips and Face are generally produced from small dry Sores of a
 warty appearance which have been considered of no consequence &
 not much regarded. All Sores which discharge a thin humour and are
 covered with a thin Pellicle and which do not heal soon are to be con-
 sidered

considered as of a suspicious Nature. In general these small Tumors are not much regarded and never suspected untill they degenerate into real and incurable Cancers. Of this the following will afford us a very melancholy Instance: A young Gentleman had many dry, Mealy Appearances with grey scabby Blotches in his Face to which he was advised to apply *Oleum Tartari per Deliquium*, this produced Cancerous Sores. For these Cutting, Salivation and the *Butyrum Antimonii* were employed by these the Sore degenerated into a Cancer which occupied the whole Cheek. It is probable that these Eruptions contained the Cancerous Virus which required only external irritating Applications to set it in action and w^d. probably never would have been attended with any bad Consequences or would in time have vanished entirely had it not been for these applications. Another Gentleman of a healthy sound Habit of Body pinched off with his Nails the Head of an immature Pimple, a small Drop of Serum appeared in the Spot and was renewed as often as it was wiped off. The Base appeared hard and indurated and it increased in Size. The *Sapies infernalis*, *Verdigris* and other Caustics were applied, but they only aggravated it. Salivation was then employed, but it only increased the Disorder. He lost his Nose, half the Eyelids of both Eyes, both the Cheeks and the upper part of the Lip before a period was put to his miserable Existence. If notwithstanding all I have said you should still be at a loss to distinguish Cancers from Venereal Sores, the following Method is always infallible: Cover a part, or if small the whole of a Cancer with levigated Calomel, cover this with a sticking plaister and let it lay for 24 hours, if the Sloughs and the Sores put on a more favourable Appearance this confirms it to be of the Venereal kind; if it is aggravated it is a Cancer. I have thus endeavoured to give you a proper knowledge of Cancers in order to ascertain the real virtues of

of Hemlock. Cancers, I have told you were of three kinds, the Cancer genuinus, fungous and Scrophulous; all these originate from Scirrh. All of them differ from one another in their Nature and Cure. The two former are entirely local, while they admit of a Cure, which can be performed only by Extirpation for which Guy's Powder is effectual when the Knife cannot be employed. Mercurials, Chalybeates and Hemlock are injurious. The Scrophulous Cancer is connected with a Disorder of the System and Constitution and cannot be cured by Topical Applications unless internal Medicines are employed at the same time. In this Mercury, Chalybeates and Hemlock are proper Medicines and will seldom fail of affording Relief if they are administered sufficiently early in the Disease. It is frequently an Hereditary Disease and contracted by Parents on their Children: it is sometimes the Consequence of a Venereal Infection and affects different parts at the same time in consequence of which both Solids and Fluids are affected.

I am now to make some Observations on the various topical Applications for the Cure of Cancers which have been made use of by different persons. But previous to this I must mention the internal use of Arsenic in the Cure of Cancers. Dr. Le Febvre who has published a Treatise on Cancers recommends Arsenic as an effectual and safe Remedy for the Cure of Cancers when given in the Manner he directs. Four Grains of clear, white and shining Arsenic in Crystals is to be dissolved in a Pint of distilled Water; of this a Tablespoonful is to be taken once a day for the first 8 days with an equal Quantity of Milk and half an Ounce of the Syrup of Poppies; it is then to be given for the next 8 days twice a day; after this it is to be given 3 times a day. If the Persons are strong and robust we may increase it to two Spoonfuls at a Dose. After the first Pint is taken the Quantity dissolved may be increased to six grains and finally

finally it may be increased to eight, but must never go beyond this last Quantity. He tells us that it is safe and sure in its Effects.

Justamond applies Arsenic in a Variety of Shapes with a view to ascertain the Effects and to determine the proper Method of applying Plunkets Remedy. Upon M^r Guy's Remedy acquiring a great Reputation for the Cure of these Disorders it was suspected to be the same or very similar to Plunkets Powder of which Arsenic is the Basis; an account of Plunkets Remedy you may find in the London Medical Essays. By Justamonds Account it appears that Plunkets Remedy has very nearly the same good Effects as Guys Powder. From a Variety of Experiments the Effects of which were always similar, he was convinced that it is not always a safe Remedy he therefore abstained from continuing to employ it tho with regret untill he could find some means of securing its salubrity without its deleterious Effects. Justamond particularly accuses it of producing various spasmodic Affections of the Muscles particularly those of the Eye. 'Tis remarkable that the Medicine that was employed here some time ago for the Cure of Cancers was observed to be attended with the same Effects. There are two Facts which tend to show the Truth of this Observation of Justamond. When I was in the West Indies I was informed that a person in the Island of Anguilla possessed an infallible Remedy for the Cure of Cancers and that one Gentleman in particular had been effectually cured without any other Inconvenience than that it had left a paralytic Affection of one Eye. It was not till I became acquainted with Justamonds Observations that I was able to assign a Cause for this phenomenon. The other was communicated to me by a Physician of this City, and there can be no doubt of its Veracity: Dr Redman was called to a Woman who laboured under severe Spasmodic Affections, these yielded to the usual Remedies and went off in a few days. Sometime after he was again called when he found her affected in the same manner; he particularly

particularly observed that her Eye was affected with Spasms and Symptoms of Palsy. As the Doctor had just then been made acquainted with Justamond's Experiments he made particular Enquiry into the State of the Cancer which he before knew she laboured under, he was told that the Night before an Application had been made by M^r. Martin of his Remedy which was then famous for the Cure of Cancers. He was sometime after again applied to and found that the same Remedy had been again applied and attended with the same Consequences and this happened repeatedly. The Doctor was now no longer at a loss to account for the Nature of the Complaint. The Young Woman was afterwards removed to Wilmington and when I last heard from her was in a truly pitiable Situation. The Cancer remained incurable with excruciating Pains that threw her into Convulsions with a loss of her Reason. Guy's Medicine is not effectual in all Cases of Cancer. M^r. Guy was himself sensible of this; he appears to have been a regular bred Surgeon and a Man of Knowledge in his profession and in many cases declined to apply it when from the Nature of things it appeared that it could not be of any Service. Dr. Berken whom I knew well and with whom I was upon terms of the most intimate Friendship never considered it as infallible and in many Cases declined to recommend it. Where the Knife can be employed it is a more speedy Remedy as well as more effectual and less painful than Guy's or any other Caustic. Cases may occur where from the Situation of the Parts the Knife cannot be applied or at least not without great Inconvenience, here we may have recourse to particular Applications of which Arsenic is the Basis. From Le Febure's Observations and Justamond's Experiments it is evident that Arsenic will prove effectual and does not always produce deleterious Effects. The Arsenic may in some Cases have good Effects yet I cannot recommend its Use to you; this must be left to the Decision of every persons own Judgment. We should never meddle with a Cancer or give

Hopes

Hopes of Relief when from the Nature of things a Cure is impossible. An incurable Cancer may be palliated by a strict Antiphlogistic Regimen & Opium. Justamond recommends washing it with a Solution of the Flores Martiales for this purpose. Every unsuccessful attempt to extirpate a Cancer aggravates and renders it worse and lays the Foundation for Disorders of the System. Experiment has at length justified my Opinion on the Composition of Martin's Powder. Dr. Rush by various Experiments has reduced this matter beyond all possibility of Doubt and determined that Arsenic is the active Ingredient. All the Remedies that have been recommended as Specifics in this Disorder are of a similar Nature. The mildest way of applying the Arsenic is in Solution. It should be used with Caution, Circumspection and Perseverance: when the Cancer is curable it often is attended with Success. It is also used with Advantage in other ill conditioned Ulcers where the usual Caustics do not produce favourable Effects. We should not apply it to a large Surface at once. If we employ the Powder it should be used only in small Quantities and then it is attended with little or no pain: in applying it we should mix it with a Solution of Gum Arabic this I am informed was the Method always employed by M^r. Gury.

Belladonna or Solanum Lethale is a plant of a very virulent nature. The whole of it is virulent tho' the Berries and Roots are more so than the Leaves, even the Leaves when infused in Water are of a narcotic Nature and will induce Sleep. It is often hurtful to the Eyes and sometimes will bring on a temporary ^{blindness} Moturthstand-
ing this it has been used by some modern Physicians for the Cure of Cancerous Complaints in the Breast. Juncker gives the Cases of two Women who were cured of Cancers by a strong Decoction of the leaves, he gave one Spoonful the first Day, two the second and three the

the third till it brought on a Drowsiness; it was continued in this Dose for two Weeks: He then gradually diminished the Dose. He tells us it was not always attended with Success. The celebrated Surgeon Heister gives us the Case of a Woman who was deprived of her Reason by the Use of the Solanum Sethale tho' it did not cure the Cancer for which it was employed. Samberger tells us of a Cancer of the Breast that was cured by this Remedy which was taken for 17 Months. The Ancients as Galen, Aegineta and others employed it in Cancers externally. Haller informs us that he could never observe any good Effects from it externally applied. The following Case you will meet with in Dr. Cullen's Lectures on the Materia Medica.

A Woman born of a Mother who died of a Cancer and her Son had, the one a Cancer in her Lip the other on the Cheek near the Angle of the Eye. The Son who had the Cancer in the Lip got the Belladonna, began with half a grain and by Degrees had the Dose increased to twelve Grains of the dry Herb which produced a good Pus in the Wound prevented its Spreading and healed it up all to a small Speck covered with a Scab. The Medicine had produced a Heat and afterwards a Constriction of the Fauces, from which it was given up. But the Cancer afterwards breaking out recourse was had to the Belladonna and with the same good Effect as before but with the same Constriction of the Fauces. After this the Lad was seized with a Vomiting of Blood and died. This Vomiting of Blood I impute to the Belladonna. In the Mother the Cancer was of fifteen Years standing and began a small Erosion which gradually extended to the Eye. She used the Belladonna very cautiously and soon found relief from her Pain, the further extent of the sore was prevented, good Pus formed and at last a Contraction of the Sore. In this State she has continued for these four Years, whenever

whenever the Sore again renews she has recourse again to the Medicine which effectually prevents its extending; nay, sometimes she goes so far as to make it contract a little but never so much as to heal it up entirely.

It is evident that the Cancer in these Cases was of the Scrophulous kind. It would be safe to repeat the Experiment with the Solanum L. thale: it would no doubt be hurtful in the two other Species upon the same Principles as the Hemlock and some other Substances. From the account we have given of Cancers it appears that Physicians are very vague in their Treatment of them owing to their indeterminate Ideas of these Disorders. A Variety of Medicines have been recommended at different times for the Cure of these Complaints. We have established that internal remedies are only useful in that particular Species of Cancer which we term the Scrophulous and that they ought always to accompany external Applications. That the Cancer Genivinus and fungosus are local and to be cured by topical Applications: when the Cancer is situated where the knife can be employed this is the most effectual, least painful and shortest Method of removing it; when the Knife cannot be employed we have recourse to Caustics of a particular kind which eradicate it without irritating as Mercurials and Antimonials are known to do. Of these Guys powder of London is found to be the most effectual. A Gentleman of this City went to England on account of a Cancer, he there put himself under the Care of two Physicians and two Surgeons who tried a variety of Medicines to relieve him but to no purpose; he then applied to Mr. Guy who cured him in a short time. Various attempts have been made to discover the Composition of Mr. Guy's powder: from every Consideration there is the greatest reason to believe that Arsenic is the Basis; and that it was long possessed by a Family in Ireland of the name of Ket.

Hyoscyamus

Hyoscyamus or Henbane possesses very considerable Narcotic Virtues, even Dioscorides long ago observed that the Use of it confused the Head and Understanding and produced Drunkenness as if from the Use of Spirituous Liquors. Boerhaave tells us that as he and his Companion were making the *Emplastrum e Hyoscyamo* they were both seized with a Trembling and Giddiness from the Exhalation of this plant. Haller gives the Case of a Fellow Student under Boerhaave at Leyden who made it a practice to taste the various plants which grow in the Medicinal Garden of that Institution even some of the most poisonous; upon tasting the Henbane he was Deprived of his Reason and affected with a paralysis of one Leg from both which he was recovered by Boerhaave. The Leaves bruised or Boiled in Milk are used externally in Pains and Swellings likewise in spasmodic Pains and Irritation without Swelling where they are applied to the part affected. It has been recommended for various internal Disorders. It has been employed in Catarrhs and Hemorrhages where it answers the same purposes and acts on the same principles as Opium. It has also been recommended in the Dysentery in the place of Opium: I have tried it in the Dysentery and found it generally attended with good Effects; it took off the pain in the Abdomen and Tenesmus without checking the Discharge by Stool as much as Opium. In one or two Instances I found it remarkably diuretic. The best way of giving it is in extract from half a grain to two grains for a Dose. Dr. Stork recommends it in a variety of Cases but as I have had no Opportunity of experiencing its Effects in these Cases I must refer you to his own Treatise.

The next is the *Nicotiana* or Tobacco; for this plant was introduced to the Southern provinces of North America. It possesses a singularly acrid and volatile with somewhat of a nauseous Odor and taste. It is a Stimulant and Narcotic. It is nauseous and virulent and acts

as a Purgative and Emetic. It disposes to Sleep in persons not accustomed to its use. By continued Use it loses those Qualities and may be chewed and smoked without Inconvenience. It is sometimes useful in habitual Costiveness and I have known persons who have become regular in this respect from smoking it. A Gentleman whom I knew was very much afflicted with the Colic; by the Advice of a London Physician he assumed the practice of smoking Tobacco; from that time he had no return of his Complaint. Dr. Zwinger gives us the History of a periodical and habitual Evacuation of Blood from the Lungs which was cured by smoking Tobacco. But the principal Use of it is externally in Glyster either in Infusion or Smoke which is injected by a particular Apparatus into the Anus, and in this way is often effectual in obstinate Obstructions, in Colicky pains, strangulated and confined Hernæ if they have not subsisted too long, and in the Tympanites. In the second Volume of the Edinburgh Medical Essays we have an account of the external Application of Tobacco and Vinegar resolving or dissolving a hard Tumor in the Hypochondrium and we are told that it excited a Vomiting; it was owing to the Vomiting that the Tumor was removed for by this the parts were compressed and the Vessels excited into action. A strong Infusion or Decoction of Tobacco has been lately recommended as an effectual cure for the Dropsy. A Physician has lately published a Treatise in which he highly recommends it. We should begin with very small Doses not more than from 20 to 25 or 30 Drops and increase it gradually. I have tried it in two Cases but in both it was ineffectual. This however is not altogether a Proof against its Usefulness for in these Cases no other Remedies were attended with any good Effects. It has been recommended in Decoction for foul Ulcers but we should be very careful not to apply it in fresh Sores. It has been known to occasion Vomiting and Convulsions by the Irritation which

which it produces. Its internal Use is very uncertain and always attended with doubtful Effects. To some Stomachs it is so disagreeable that a small Quantity will excite Nausea and Vomiting. Some have recommended the Symplic Nictianæ in all Catarrhs and Pectoral Complaints that have continued for a length of Time and it appears well calculated for a Pectoral. When we intend it for internal Use we should boil it for a considerable Time in Water by which its acrid and nauseous Parts are evaporated and it is rendered less liable to excite Vomiting.

Sauro-cerasus. By the accounts given of this in the Philosophical Transactions of London it appears that it is a poison & narcotic rather than possessed of any Medicinal Virtues. 'Tis there proved that both Man and Brute suffer from the distilled Water of the Sauro-cerasus. But we may here remark that we must not altogether trust to Experiments made on Brutes with a view to determine the Medicinal Qualities of any Substances for some are poisonous to them which have no such Effects upon the Human Body; thus Hemlock immediately kills Cows and Human Beings; Bitters are very disagreeable to Dogs and even sometimes destroy them whereas in a small quantity they are rather friendly to the Human Constitution. We should therefore when we make Experiments of this kind always enquire whether the Animals are affected by these Substances in a particular manner. The Laurel is certainly however a strong Poison to the Human Constitution. An Instance of this occurred in England some Years ago and was published in a London Magazine. A Person had married the Sister of a person of great Fortune, he was desirous of possessing the whole Estate but the life of his Brother in Law stood in the way; during an Indisposition he administered to him a Draught of the distilled Laurel Water instead of the Medicine which the Doctor had prescribed this killed him in a short time. The Crime was afterwards detected and the perpetrator of it executed.

Saffron

Saffron. The real Medical Virtues of this Substance are not properly ascertained: whilst some suppose it of superior Virtues others consider it of little Consequence in the Materia Medica; both these Opinions are in some measure just. If given from one Grain to five, the Dose in which it is usually prescribed it is trifling and insignificant but if given from ʒ to half a Drachm it may no doubt have some Effects on our System but even then scarcely equal to what the favourers of this Medicine suppose. Boerh. have supposed it useful to strengthen the Nerves and excite the Animal Spirits. Galen, Borelli and Van Swieten tell us, when given in large quantities it immediately makes the person heavy and drowsy and will even bring on an Apoplexy. Given in moderate quantities it raises the Spirits and will even occasion immoderate Fits of Laughter.

Tea and Coffee are ranked under one Head tho' of a very different nature however correspondent in some of their Effects. Tea is undoubtedly a Sedative and Narcotic. It possesses this quality in a much higher degree when fresh than when kept some time; but even after it comes to us it sometimes affects very irritable Nerves and weak Stomachs very considerably. I know some persons who from taking a Cup of Green Tea moderately strong had immediately Spasms excited in the Stomach and other parts of the Body. By many its bad Effects have been attributed to the relaxing Quality of the Warm Water and they recommend Tea to be taken strong to obviate these Effects but they are egregiously mistaken. I know persons who take weak Tea with impunity who are immediately affected with Spasms Tremors and various Nervous Complaints when they use strong Tea. Green and Bohea Tea are said to be the product of the same Tree. The former consists of the Leaves which first put out in the Spring which are more tender and delicate; the latter is of the second Growth and collected in Summer and is of an inferior Quality and Flavour.

Whatever are the original Qualities of *Coffee*, they are much altered by

by our manner of preparing and using it. Its Virtues are owing to its Empy. reumatic Oil, all of which are as we know, antispasmodic and Sedatives. It is certainly possessed of some Virtues: it has been found useful in Spasmodic affections of the Bowels. Dr. Pringle found it useful in the Spasmodic Asthma when it is to be used as a Medicine: it is to be taken very strong and drank without Sugar or Cream. I have always found it hurtful in the Dyspepsia where it is always attended with Indigestions, Flatulencies and other disagreeable effects. The great Variety of Nervous Disorders to which we are now so much more subject than our Forefathers were, we may with justice attribute to the free use of Tea and Coffee. It is scarcely 100 Years since these have entered into general use and in this time a great Revolution has happened in the Diseases to which the Human Constitution is liable. Before the Introduction of Tea and Coffee Meat was used in much greater quantities than now. In Queen Elizabeth's Reign we know the Court Ladies had an Allowance of Meat and Beer for their Breakfast. Putrid and Inflammatory Fevers were then more prevalent and Nervous Disorders or Nervous Fevers were then very uncommon which now constitute the greatest part of our Diseases. There is no doubt but what we have benefitted by the Change. They have also contributed to the refinement of Manners which has so generally taken place within the last Century; the free Intercourse which they have occasioned between the Sexes has contributed to polish the one and improve the other. This has also contributed to abolish that Ferocity of Manners which formerly took place.

Antispasmodics

Antispasmodics.

Spasm implies simple Constriction, we therefore add involuntary, violent and inordinate to distinguish it from natural Constriction. Spasm and Convulsion signify nearly the same thing, but if we distinguish them Spasm denotes a simple Contraction without alternate Relaxations; Convulsion means repeated Constrictions and Relaxations. They are both of the same kind, they affect the same parts are owing to the same Causes and often change from one to another. We do not however consider Spasm in this limited Sense but rank under it Spasmodic Motion of every kind and by Antispasmodics we mean those Medicines which take off this Motion whether they are more strictly speaking Spasm or Convulsions.

Fetid Gums. These have been always known to be powerful Antispasmodics. But previous to speaking of their Virtues, we shall treat of the Disorders in which they have been used. Of these the chief is the Hysteria. This deserves a particular Attention on account of its frequency, its obscure Nature and Origin, its Violence and the difficulty of distinguishing it as well as curing it. No disorder puts on such various Appearances, it attacks the Mind as well as the Body; there is scarce a Disorder but what it imitates and resembles and there is no part or Function but what it affects. It is a disorder that has been known at all times and in all places. We have descriptions of it in the early Writers tho' much inferior to the Accounts they have left us of other Disorders: this was probably owing to Women being chiefly intrusted with the Cure of this Disorder which was supposed to originate in the Utterus and Physicians were never called in but in obstinate and desperate Cases. It is but lately indeed that Physicians have

have formed a proper Idea of this Disease. It may be said to consist in affections of the Nervous System and spasmodic Convulsive Motions of the Alimentary Canal and more or less general Motions of the whole Nervous System. It is more common to Women than to Men and there are very few Women who do not at some period of their Lives experience its effects. It is not however confined to the Fair Sex, Men are sometimes really affected with the Hysterics which are different from the Hypochondriasis in Nature and Cure as shall be shown presently. Tho' every Woman is subject to the Hysteria yet all are not equally liable to be affected with it; it chiefly affects those of a peculiar Habit, Temperament & Idiosyncrasy, who live on certain Aliment & are at a particular period of Life. In some the Disorder is brought on by lighter Causes than in others and these again are more severely affected. Some are affected from the most trivial and light Causes; in some it is produced only by considerable Causes. Those persons that are naturally inclined to the Hysteria and are frequently and violently affected by it are generally possessed of great Sensibility and Mobility of Body and Mind, they have an exquisite Sense of pleasure and Pain, they are of a lively Imagination and joyous Disposition, they are pusillanimous, light and fickle, they are prone to various passions and affections of the Mind; those also who have particular Idiosyncrasies when they are affected in a particular Manner from certain Odors Aliments and Tastes which are agreeable to most persons. It attacks those of a lax, soft, tender and weak Habit of Body; of an elegant, delicate and graceful Form those who have large Arterial Systems and are subject to copious Menstruations; those also who are subject to Hemorrhages, who lead an idle, indolent Life, live high and use but little Exercise; those who are afflicted with Grief, Care and Soli-
citude

citude. Those also who are recovering from tedious Disorders or
 who have had profuse Hemorrhages or other Evacuations which
 debilitate the Body. This Disorder is not confined to the more
 delicate; it is very frequent and violent among the Vulgar &
 attacks Women of a strong masculine habit of Body. Unmarried
 Women, Widows and barren Wives and those who are subject
 to Hemorrhages from the Uterus and labour under the Chlo-
 rosis are most subject to it. It however also attacks pregnant
 Women and Women in all Ranks and Situations of Life. It
 is always an hereditary Disease with some Women and even
 whole Families when it is owing to some fault derived from the
 parent. Women of a robust and manly habit, and a sanguineous
 Temperament who are prone to Affections of the Mind are seized
 with a convulsive hysteric Suffocation and are violently affe-
 ted over the whole Body. Those of a phlegmatic Habit who are
 affected with a Chlorosis, who are weak and delicate are seized with
 Faintings and more local or topical Affections. This Disorder fre-
 quently occurs from the age of puberty till the total cessation of
 the menstrual discharge. It is not however confined to this period
 I have known it attack Girls of eight or ten years, before
 there was the least appearance of the Menses. It also attacks
 Women after the Menses have ceased, even when they are
 sixty

sixty or seventy years old. It frequently attacks Women when their Menses are about to cease altogether - likewise pregnant and lying in Women - particularly after difficult Labours.

The occasional Causes in persons who are predisposed are as numerous as they are various - sudden and violent Sensations of the Mind and mental Affections in general. Of these none are more liable to produce the disorder than violent Anger, great Terror or sudden Consternation; Objects horrible to the Eyes; the sight of a Person in an Hysterical Fit; or an unexpected Messenger of sorrowful Tidings; the improper Relation of dreadful and unfortunate accidents; the recollection of former violent Emotions; nay even frightful Dreams have sometimes brought on the Disease. Certain Odours particularly perfumes as Musk, Roses &c have produced it in some Women - in others it has been occasioned by the noise of particular Sounds. Hoffman and Whytt give us Instances of strong Light having thrown persons into an Hysterical Fit. Retention or Suppression of natural or customary Evacuations, particularly a sudden Suppression of the Lochia or Menses from cold or moisture, obstructed perspiration, costiveness or other causes of this kind have been very properly ranked among the occasional Causes.

Prose

Profuse Hemorrhages of the Menes or Lochia and immoderate Diarrhoeas will sometimes give occasion to the production of the Hysteria - further, taking cold when the Body is warm or fatigued with Labour or Exercise, Plethora, Debility, Inaction, Fatigue, Watching, acute Diseases, pregnancy, Errors in the quantity of Aliment or Drink, Fasting, Warm Drink, Flatulent Food, or Food with regard to which the person has an Idiosyncrasy as Fish or Milk, strong Cathartics, the Retropulsion of Arthritic or Rheumatic Complaints, repelled miliaria Eruptions, Fluor albus with acrid ulcerating matter in the part, Schirrus and Cancer of the Uterus, Prolapsus Uteri, violent pain with many other things of an irritating Nature and finally whatever occasions Commotion in the Nervous System may be ranked amongst the occasional Causes of the Hysteria. Scarcely any exciting Causes are required if the Disease has returned frequently or become periodical. We are next to give the History and Cause of the Disease, not however in a regular manner, for this would be next to impossible. The Symptoms imitate every Disorder and seldom preserve a certain Rule or Type. They are scarcely ever the same in two different persons: they are even different in the same person at different times. If the Attack is not sudden

Sometimes

sometimes before the St is completely formed the Patient yawns and stretches, and feels a heaviness, lassitude and languor in the Limbs and Members of the Body with a lowness of Spirits; Flushings of Heat are frequently felt on the Forehead, Cheeks, Temples, and these are preceded by a Sense of Cold and Chilliness shifting from one place to another. The Countenance is either pale or flushed; pains are felt in different parts, as the Cheeks, Loins, and Extremities - but these generally occupy the Back and some parts of the Head. The Urine is limpid like Water, and is made in large quantities. A Motion is perceived, at first obscurely as if a Ball were moving backwards and forwards in the Abdomen - this appears as if it tended towards the Diaphragm. The Ball appears to grow softer and larger until it arrives at the Pits of the Stomach, when it again contracts into a hard lump - As the Ball goes up it occasions various Symptoms - Some parts of the Abdomen appear hard and prominent and others as if retracted - there is a rumbling Noise in the Intestines. The Sphincter Ani is so contracted that it will not admit air to pass, nor a Glyster pipe to be introduced. There is an Anxiety and Oppression at the praecordia with a Sense of Tightness and Constriction. The Epigastrium appears as if distended, the Respiration is difficult, anxious and small. The pulse is hard small, intermitting trembling and unequal with a dry

convulsive

convulsive cough - these are attended with a singing noise in the Ears - sparkling before the Eyes, & Giddiness of the Head a Heaviness of the Senses - the patient is at last seized with a slight fainting or is overwhelmed with Sleep and lies in a soporose State or Stupor. The Ball which is called Globus Hystericus afterwards rises into the Throat attended with a Tumour of the Fauces; the Respiration becomes thick and short with a Sense of Anxiety and constriction so great as if the Fauces were drawn together and tied with a Cord or Bandage and which threatens immediate Suffocation - the Voice is lost, the Countenance appears livid and swelled, the pulse appears almost abolished low, small and slow, the Breathing is so imperceptible that it appears as if there would be immediate Suffocation - the Eyes grow dim, the patient at length sinks away into a Sleep, during which she is either agitated with Convulsive Motions or lies immovable. When the paroxysm remits the Sleep becomes more placid and she recovers with repeated slow sighs, a rumbling Noise in the Belly and a discharge of Stultencies and sometimes a serous Discharge from the Vagina the Eyes open - The Heat and the Colour of the Countenance become animated and the Senses and Judgement return with the Voice. After the paroxysm they complain of a Heaviness and a Sense of Pain in the head, they remain infirm and torpid - The paroxysm is sometimes attended with Convulsions; By these Convulsions the

the Body is forced into various Positions - They exert uncommon Strength and perform Feats which appear almost miraculous; they bend and extend the whole Body - they jump, tremble and are twisted round with the utmost Velocity - they are distorted into a thousand different shapes; they generally retain some sense; they hear, they see and they know and on the remission of the paroxysm, they recollect every thing that had passed - they are sometimes seized with convulsions which resemble the Epilepsy when they fall down suddenly with a loss of Reason and sense. These convulsions are often succeeded by a disagreeable Sensation of cold air arising from the pubes, Feet and Arms advancing towards the head and upon reaching the head they are attacked with Convulsions and fall down senseless. The convulsions are sometimes constant, but they generally intermit. At times after being affected in this manner, the motions cease entirely and the patient falls into a sleep resembling the Apoplectic: When they recover they are ignorant of what passed from the time they were attacked. Some are affected with a Paraplegia and Hemiplegia, or a Paralysis of a particular part. They are sometimes seized with a Catalepsy - sometimes the Mind is more affected than the Body. The Tongue appears as if shattering, but they observe no order; they falter and speak nonsense - They beat their Breasts as if they had Pain there - without reason - They are agitated with dreadful Visions. They are borne away by different and opposite Passions of the Mind which succeed each other without

without any reason. Rage, Fear, Hatred, Love Hope and Despair rapidly follow each other. With as little Reason they change from crying to the most inordinate Fits of Laughter and are dissolved in foolish mirth. There are likewise considerable Affections of the Brain - there is a distension of the Head - various Images present themselves before the Eyes as Illus. The Patient sometimes lies comatose - There is a sudden Abolition of Strength, fluttering of the Heart, a Coldness of the Extremities and Syncope. The Mind and Senses are acting, the pulse and Respiration are diversified in a thousand different Ways. They lay immovable and to all appearance dead and continue in this State for one or more days, untill they have been laid out for Interment - and there are one or two Instances upon Record related by grave authors of Persons in this State being actually buried and who came to life again in the Vault in which they were deposited where they perished most miserably. Rigors and Tremblings attack the Patient with a Coldness of the Extremities - a violent biting Cold and severe Pains are felt in the Back, Loins and Os Coccygis. There are also wandering Pains with a sense of Constriction as if the Part was tied or compressed with a Cord or Bandage - There is not seldom severe tense dull or acute Pain of the head; these are sometimes fixed, sometimes continue vague and periodical; sometimes on one, sometimes on the other Side of the head. At times it is seated externally in the Forehead, with a sense as if a nail were driven through - hence it is called the *Clavus Hystericus*. These are almost

almost always attended with a Giddiness and Sense of Fullness in the Head, a ringing in the Ears with an intolerable sense of Heat and Cold and a violent pulsation of the Arteries. There is sometimes a Nausea and Vomiting of poisonous Bile at times with excruciating pains of the Teeth and Jaw with a discharge of Saliva and stinking Breath. There are sometimes acid bilious and sulphureous crustations so extremely acid as to set the Teeth on edge; Heartburn, Hiccough, Borborygmi with various kinds of Pain in the Abdomen in the Pit of the Stomach and the Regio Coli. Some are attacked with excessive and incessant Vomiting and sometimes a Diarrhoea; some are troubled with Colic and the Iliae Pession with Tenesmus and Colics ending in Jaundice. Some have a constant and violent desire to make Water. In some the Urine is suppressed or only evacuated in Drops with a sense of great heat and pains resembling the Nephritis. The Color and Sediment of the Urine vary, in some Cases the Disorder returns periodically with a dry convulsive Cough. There is a tightness in the Praecordia, a palpitation in the Heart, a Giddiness or slight faintings, Fits. This Disease is often complicated with other Disorders. When a patient who is subject to this Disorder is attacked with other Disorders, whatever may be their form, some Symptoms of the Hysteria will still accompany them. It is evident that in different Cases, different and even opposite Methods of Treatment

will be required. The Paroxysms are of various Appearances and always of different duration - some last only for a few minutes some for hours and even for days. In general the more violent the attack the sooner it ceases. The slighter attacks on the contrary continue for a considerable time. Those which affect only a particular part continue for some time. In some the disorder is not very apt to return - this depends on the general habit of the Body and the occasional Causes. In others it returns on the slightest occasions and this is most generally the case. The Disorder returns at uncertain periods. The accessions are different from each other. In some they succeed each other quickly and the Patient will have several Paroxysms in a day. They commonly attack at the menstrual Period. on returning frequently they become in a manner perpetual. They often become periodical, when the same train of Symptoms succeed each other in every Paroxysm. During the Intervals the Patient is sometimes perfectly well and quite free from all Complaints and every pain. Others, particularly those advanced in Life who are weak and in whom the Disorder has continued for a long time, during the Intervals complain of a Headache, the Night-Mare, Watching, Dreams. This Disorder of itself is seldom mortal, but then it lays the foundation of other Diseases, which prove more fatal in their termination. Most Authors are of Opinion that the Hysteria and Hypochondriasis are the same Disease and should only have different

different names as they occur in different Sexes. But though they agree in many particulars and have several Symptoms in common, they have still more which are peculiar to and characteristic of each disorder. By comparing the description of the Disorder just given with the Hypochondriasis it will appear that they are really distinct. Persons subject to these Disorders differ altogether in habit and temperament. The Hysteria generally attacks the female Sex tho' this is not always the case as we have many Instances of the Hysteria in Men and many cases called Hypochondriac are really Hysteria and vice versa.

The Hypochondriasis generally attacks persons of a melancholy temperament of a dry, rigid and lean Aspect and a dark Countenance who have rough black curled hair, the Veins are large and turgid. they are generally subject to Costiveness and the piles; they possess a calm, tranquil equal and constant mind; they are sedate & reserved. It generally attacks persons in the decline of Life, it advances by slow steps; it is constant and perpetual and continues for months and years by day and by night without Interval. It is seldom radically cured. It is evident from what has been said, how different the Hypochondriasis is from the Hysteria. The Hysteria is chiefly confined to Women, it occurs in the Prime of Life, in persons of a sanguineous Temperament, who
are

who are possessed of great Sensibility and Irritability of Nerves and mobility of the system. The Paroxysm is violent sudden, but is soon over, perhaps, never to return. During the Interval the patient enjoys an uninterrupted state of health. Some Symptoms are exactly similar in both, as in the Alimentary Canal, the distention of the Abdomen, the acid Eructations, the Cruditics &c are the same in both. but these Symptoms likewise occur in other Disorders - they occur in the Chlorosis, Suppression of the Menses and in the Gout. In the Hysteria the Symptoms are more violent and more purely spasmodic and convulsive - they are likewise more extended over the system. In the Hypochondriasis the Symptoms are less violent and are confined in a great measure to the alimentary Canal. The moveable Palpe and constriction of the Fauces never occur in the Hypochondriasis nor is the Abdomen contracted by Spasm nor the Navel retracted as in the Hysteria. The Habit and Frame of Mind is also different. The Hypochondriac is in every place and always melancholy, sad and anxious, fearful suspicious, diffident apprehensive and always foreboding some ill fortune to themselves - they give up all hopes of Recovery - they suspect their most assured Friends - they loathe the World and every thing therein; they are fond of Solitude and fly Society - their Mind is intent on one Object both day and Night, from which they are diverted by Dreams, vain Fears and Terrors. When the Mind can be drawn from the Subject they reason with Judgement on other Subjects and

even seem to possess superior Judgement, Prudence & Sense. The Hypochondriasis is distinguished from Melancholy only by being accompanied with Affections of the Alimentary Canal. It is not rare to find the Hypochondriasis change into real Melancholy and even Mania. If there is Melancholy in Hysteria it seldom continues long and is soon succeeded by Joy, Mirth and Laughter; the Mind is seldom intent on one Object. The Transition from one Subject to another is sudden. When the paroxysm is over the Patient possesses a sound Mind and healthy Constitution. Both the Disorders may be complicated in the same person with one another. The Hysteria may be changed into the Hypochondriasis partly from advanced Age and from obstructions being formed in the Viscera. The Hysteria is often produced from Suppression of the Menses and the Repulsion of various Eruptions. It is very probable that pains in the Head Affections of the Alimentary Canal Cardialgia - Flatulencies and Acidity which occur in Chlorosis the Arthritis &c when they take place in a female have been too often mistaken for the Hysteria, and it is this probably th has led Physicians to consider Hysteria as being frequent & inconstant.

We are next to treat of the best Method of relieving the Disorder but previous to this we must premise something with respect to the Prognosis. Tho' the Disease may appear very alarming the Fear is generally greater than the Danger.

A Paroxysm of the Hysteria seldom proves fatal. Sometimes however it ends fatally - it destroys some in the form of an Apoplexy in others it produces great and long faintings and some are carried off by severe Convulsions. The Danger is to be estimated by the Manner of coming on; the Strength of the Patient, the severity, number and duration of the Paroxysms likewise from the manner in which the Vital functions are affected, for the danger is in proportion to the degree in which these suffer - but there is little danger during the Paroxysm the Disorder is extremely apt to return on the slightest Occasions and to become tedious and periodical. It is sometimes changed into an Apoplexy when it is exceedingly difficult to cure and very obstinate and often continues to afflict the Patient till the day of his Death notwithstanding all the Effects of the Physician. By the repeated Attacks the Strength of the Patient is impaired and the natural functions are affected. The vital Functions also suffer variously which proves a fresh source of innumerable Evils. The different changes of the Body by advancing in life will sometimes diminish the Violence of the Disorder and render it less frequent, and sometimes by relieving the pre-disposition to this disorder will remove it entirely. when it arises from some fixed but latent cause. when it returns frequently. when the paroxysms are long when the disorder has become periodical or has degenerated into an epilepsy when it

when it is attended with a suppression of the menses the Hypochondriac disease or other complaints the more of them concur the greater will be the difficulty of cure. On the other hand if the Patient is young the disorder recent if it has arisen from affections of the mind or suppression of the menses the fewer alarming symptoms that occur - the easier and quicker will we relieve our patient - The Indication of cure turn on three points - 1st to remove or guard against the occasional Causes - 2nd to mitigate shorten or relieve the Paroxysm and to guard against its consequences 3rd to prevent the return of the Paroxysms by avoiding the occasional concurring the predisposition of the system to the disease by restoring tone to it - First with respect to the occasional causes - these are sometimes external and transitory they are very various particularly so in ~~menstruation~~ - as in such things as excite the mind or they may be constant or inherent in the body - such as suppression of the menses - fluor-albus &c. for this reason it is

evident that it sometimes requires different +
when the predisposition to this very great - and
even opposite treatment from what it does at
other times - with respect to the second indica-
tion where the symptoms of the Paroxysm
are slight - there is little or no occasion for Medicine
and we may as well abstain from the use
of it - But if the access is severe we should
afford the most speedy relief in our power if
there are symptoms of plethora or the disease
has been brought on by Cold or a suppression
of the menses particularly when this has
taken place suddenly - bleeding will afford
instantaneous relief - when ever there are
symptoms of blood being obstructed and
stagnating in the head or Lungs where the
respiration is difficult - and short - the
Countenance livid when there are symptoms
of Coma or Lethargy we should never
hesitate to take away some blood tho
the pulse is small and vibrating the

pulse in the cases will often become stronger and quicker upon bleeding - we should never order bleeding but with caution and circumspection - it is a general Observation that unseasonable bleeding has been attended with the worst Consequences and has even destroyed the patient - It is to be considered only as a palliation and affording temporary relief. If only a small Quantity is taken away or a particular symptom require the loss of some blood - it is better accomplished by Leaches or cupping Glasses with scarification - If the disease is accompanied with Spasmodic or Convulsive effects perturbations of the mind and delirium - sedatives and Antispasmodics of the milder kind are to be employed - If there is a syncope, Catalepsy Coma or abolition of the senses we should constantly and with prudence administer what are commonly called nervous medicines or the stronger antispasmodics by the stimulus of

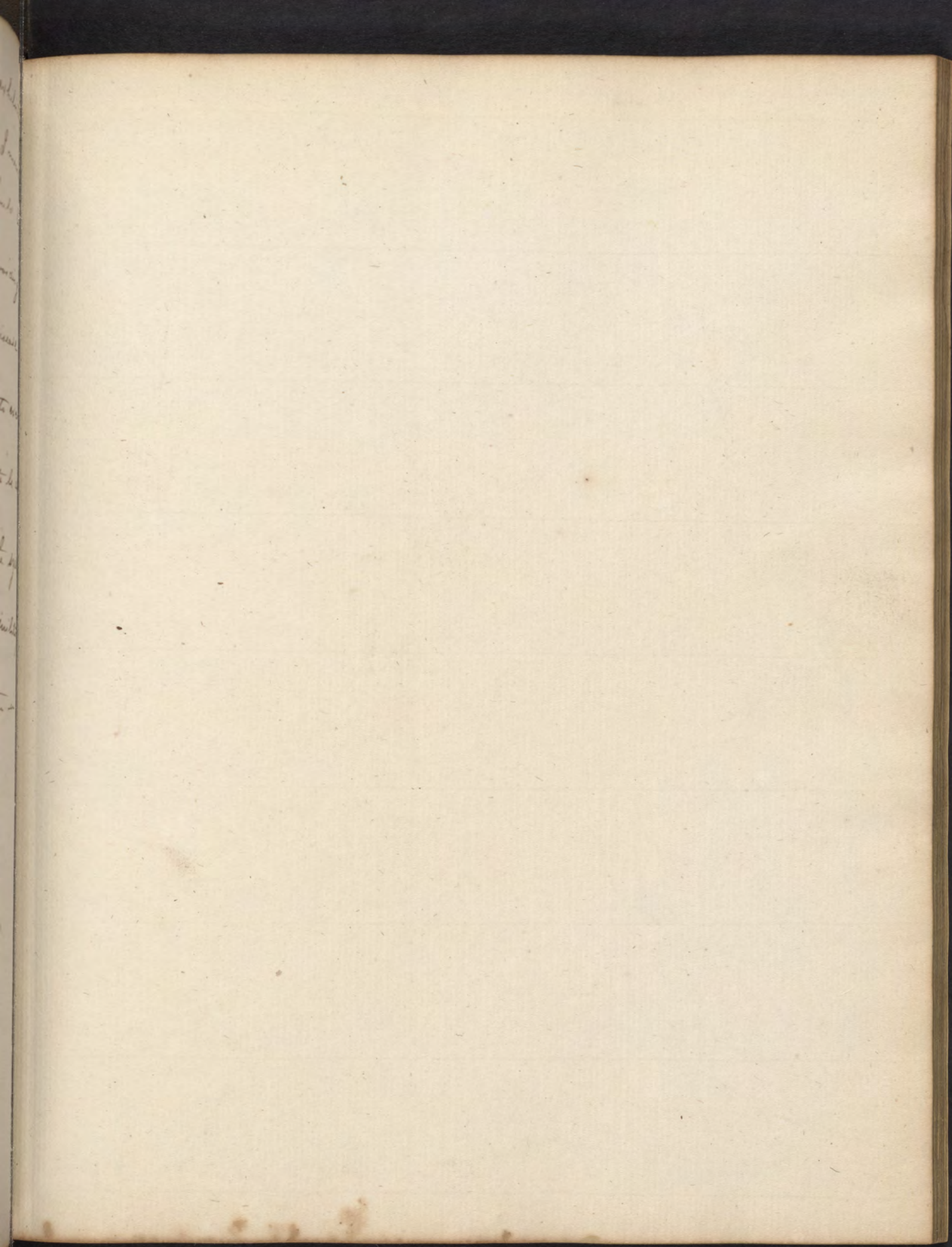
which sense and motion are executed the weak medicines should be first tried. when these fail we should have recourse to the more powerfull. the heating and violent stimulating substances should always be avoided these always increase the anxiety of the praecordia render the respiration difficult and increase and excite convulsions. These remedies should be given as much as possible in the beginning of the paroxysm when thus given they will often prevent many of the symptoms which would otherwise occur - The Patient should be recovered by external applications various methods are employed for this purpose - Volatile salts and volatile spirits, Vinegar, Tartars, the smoke of candle wick burnt, feathers Leather and bones, the smoke of Tobacco and asafoetida are to be applied to the nostrils - the breasts abdomen and other parts are to be

rubbed with woollen cloths impregnated with
Camphor Latic Epithemes. Ether, aromatic plasters
and Anodyne Glysters may also be used with
advantage Pediluvia may likewise be empl-
oyed Cold water may be thrown on the
face and breasts with success this is every
day used when Syncope comes on - if the
Syncope does not yield to these applications
and the Patient has no appearance of sense
or motion strong stimulatores resurators.

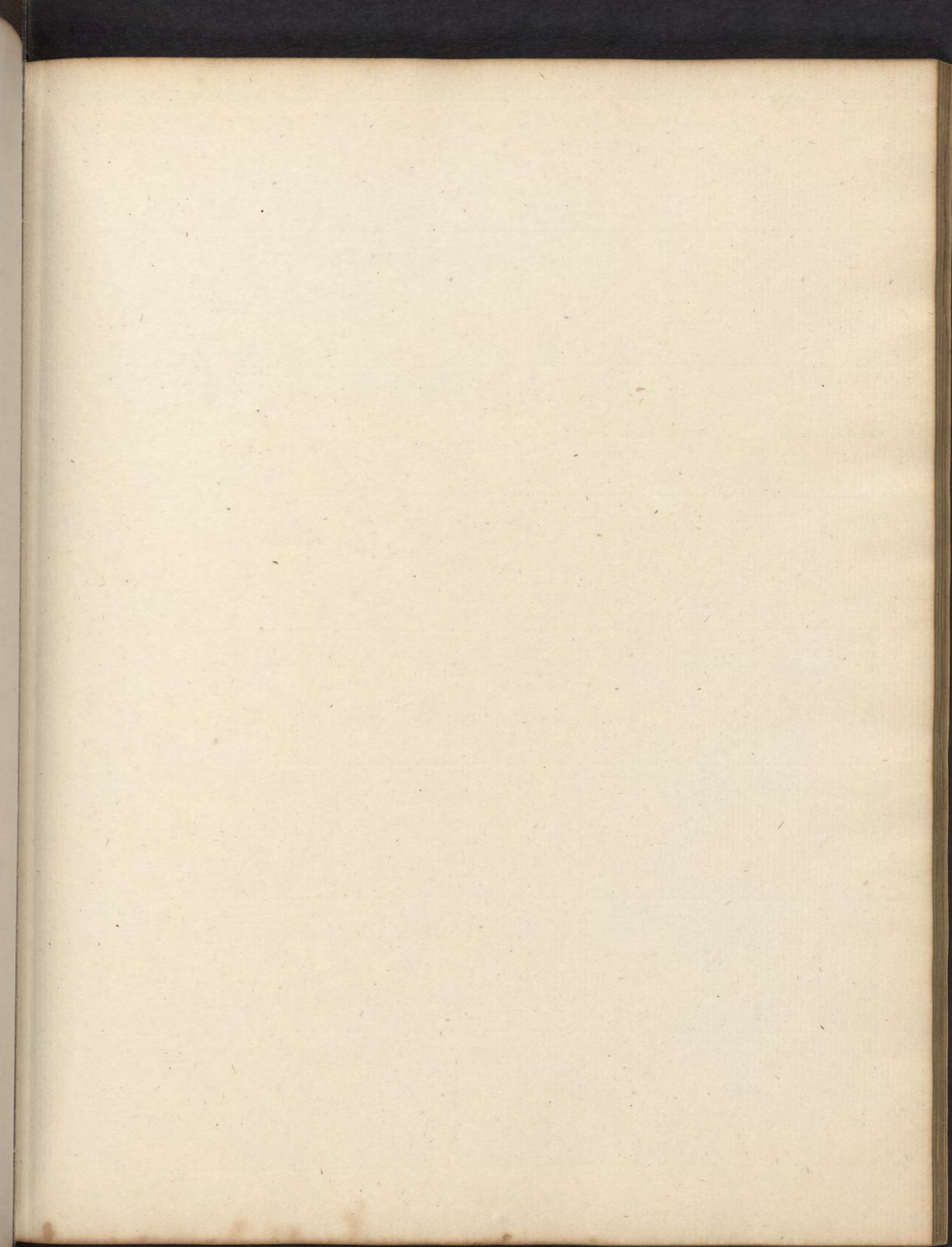
Glysters and emetics even of the acid kind may
be had recourse to it is sometimes difficult
to tell whether the person is dead or not
in this case some advise us to make loud
cries to prick the Body in various parts to
apply strong stimulatores and even the actual
Canterbury to the soles of the feet but there is
no doubt but these are dangerous expedients

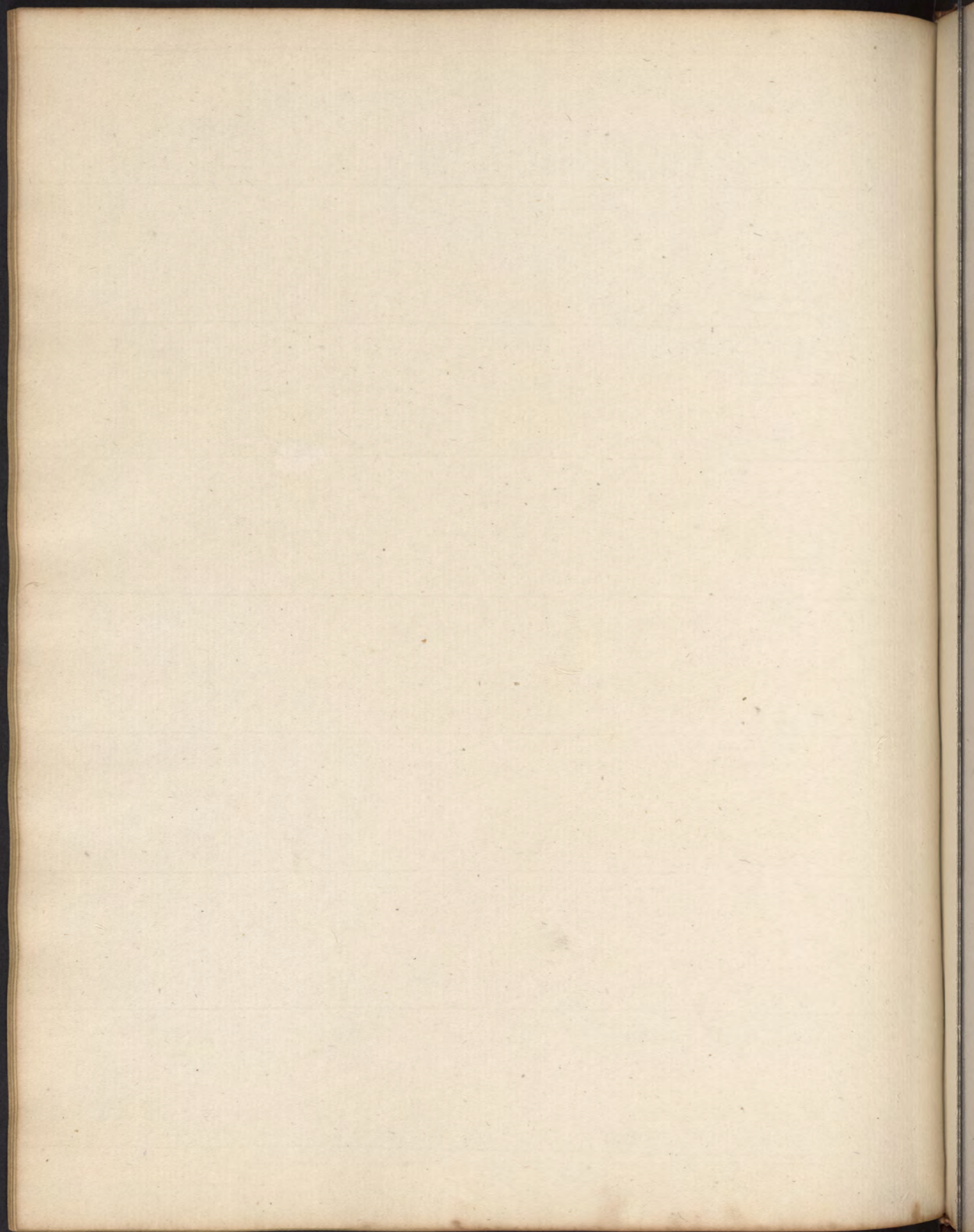
we should be cautious how we apply strong
Stimulants when the countenance is livid
and bloated lest we should occasion a
rupture of some blood vessel of the Lungs
or brain we should have recourse to gentler
methods, as the gentlest and least stimulat-
ing - bathants the warm bath and modera-
te friction - if any internal medicines are
requisite they should be given in solution
and in large doses - Opium, Camphor, Ether
the Volatile alkali and the various com-
bination and composition that may
be formed from these are most proper
for this disease the dose and choice of
these is to be regulated by the habit
of the Patient - after the paroxysm is
removed the Patient is to be kept in

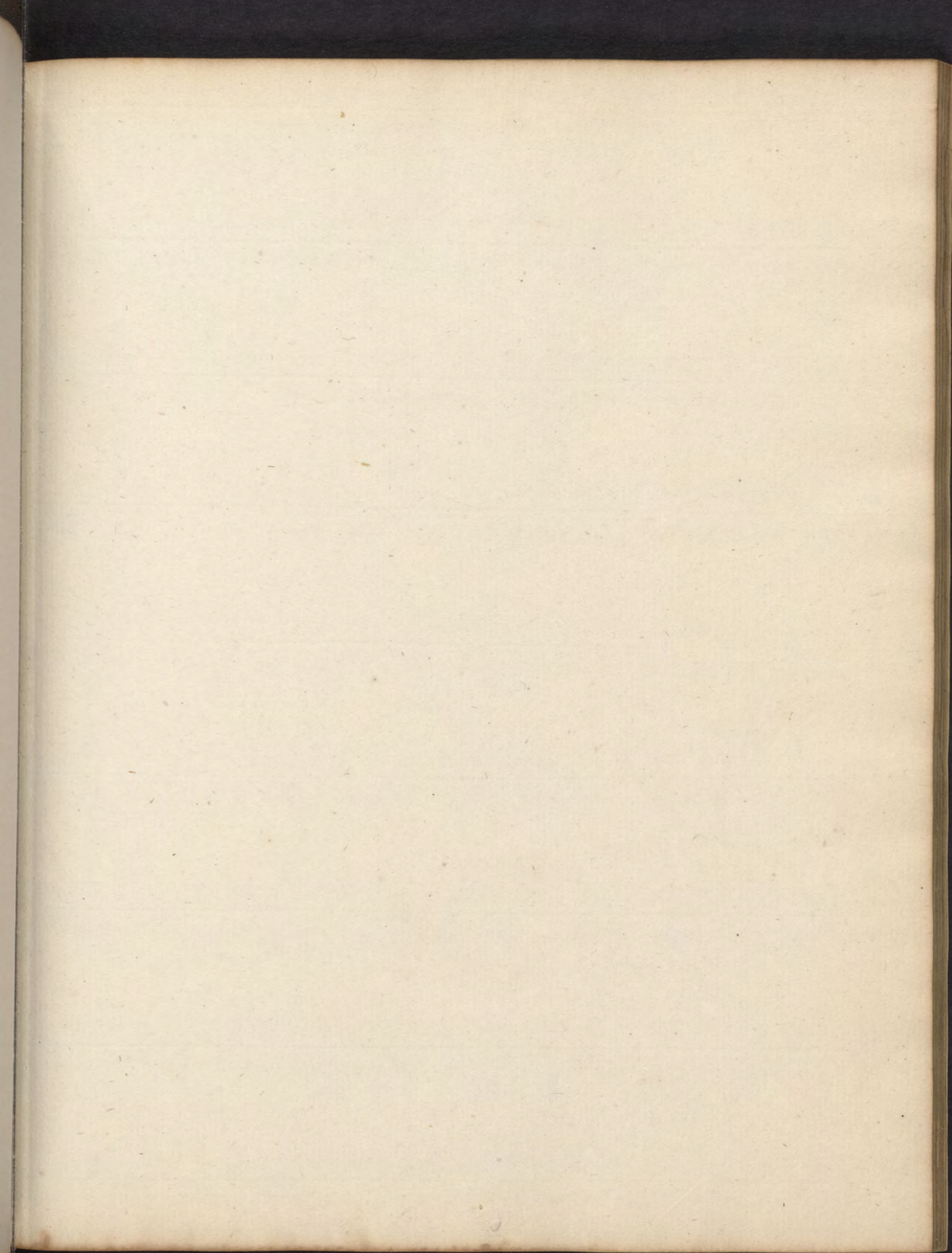
bed and refreshed by Cordial and exhilarating
medicines and Drinks - by which I mean in
general volatile medicines - he should be
carefull to prevent a return by avoiding every
thing that may dispose to this disease or
may serve as an occasional cause to excite
it afresh - but it is principally to be done
by correcting the predisposition of the system
and the too great sensibility and irritability
of the Prima Viæ and Nervous system in
general

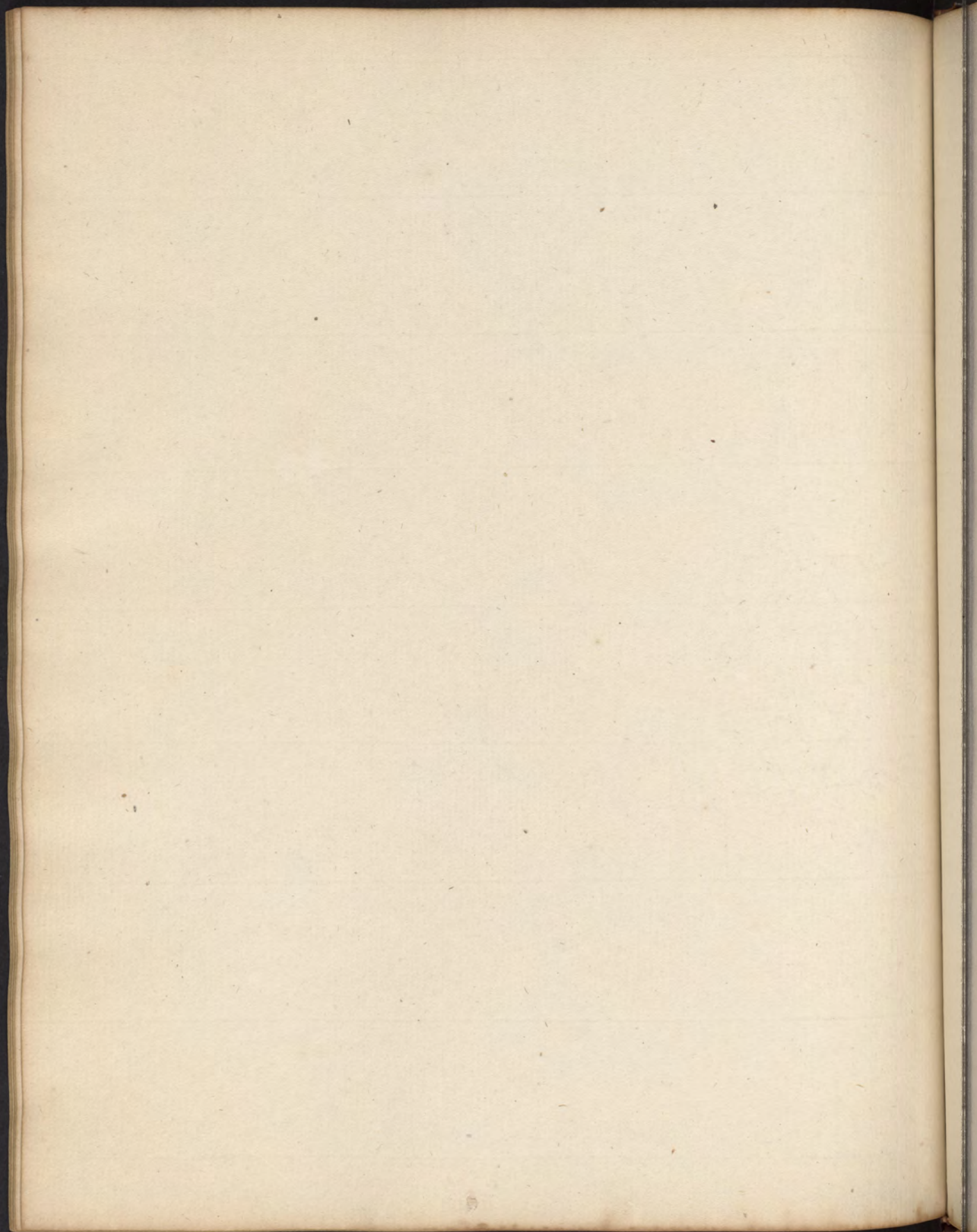


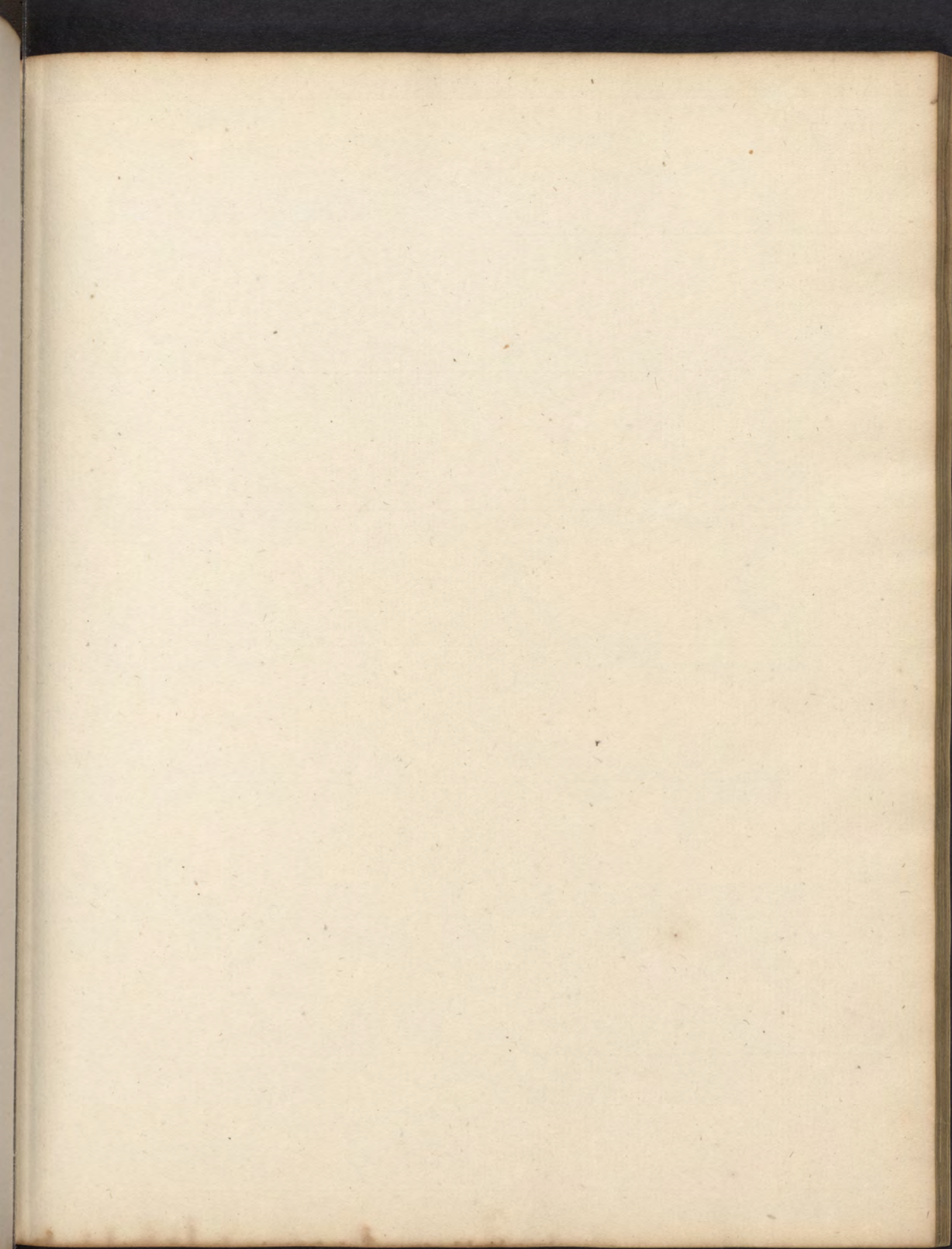
but not enough to be used as a
reference and the only by which I can
know of which the same is to be
used in the same manner by writing
the first page on the left side of the
page and as an occasional case the same
it is not a but it is properly to be
in writing the proceedings of the day
and the first page of the book
of the same and as the same is to be
used in the same manner

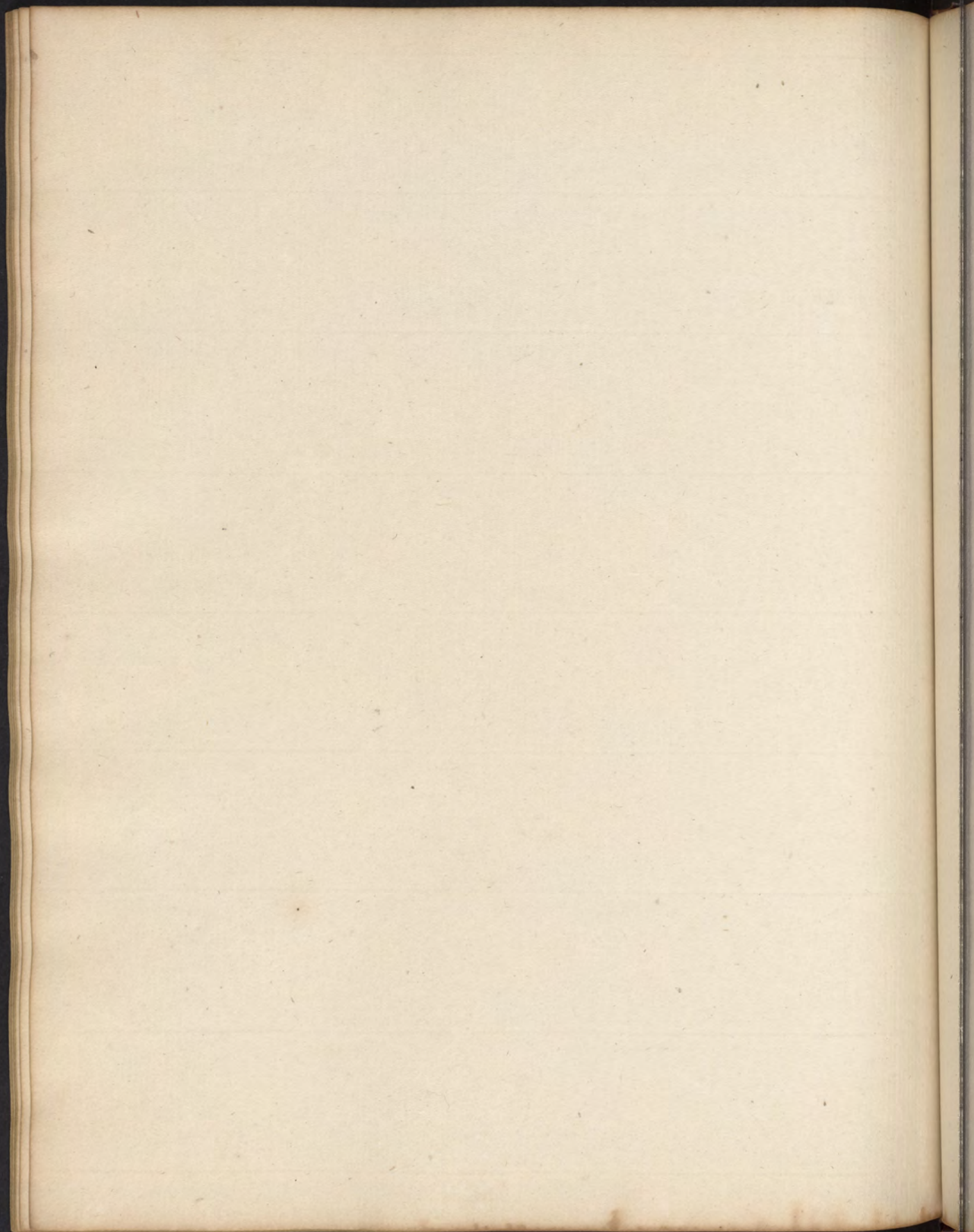


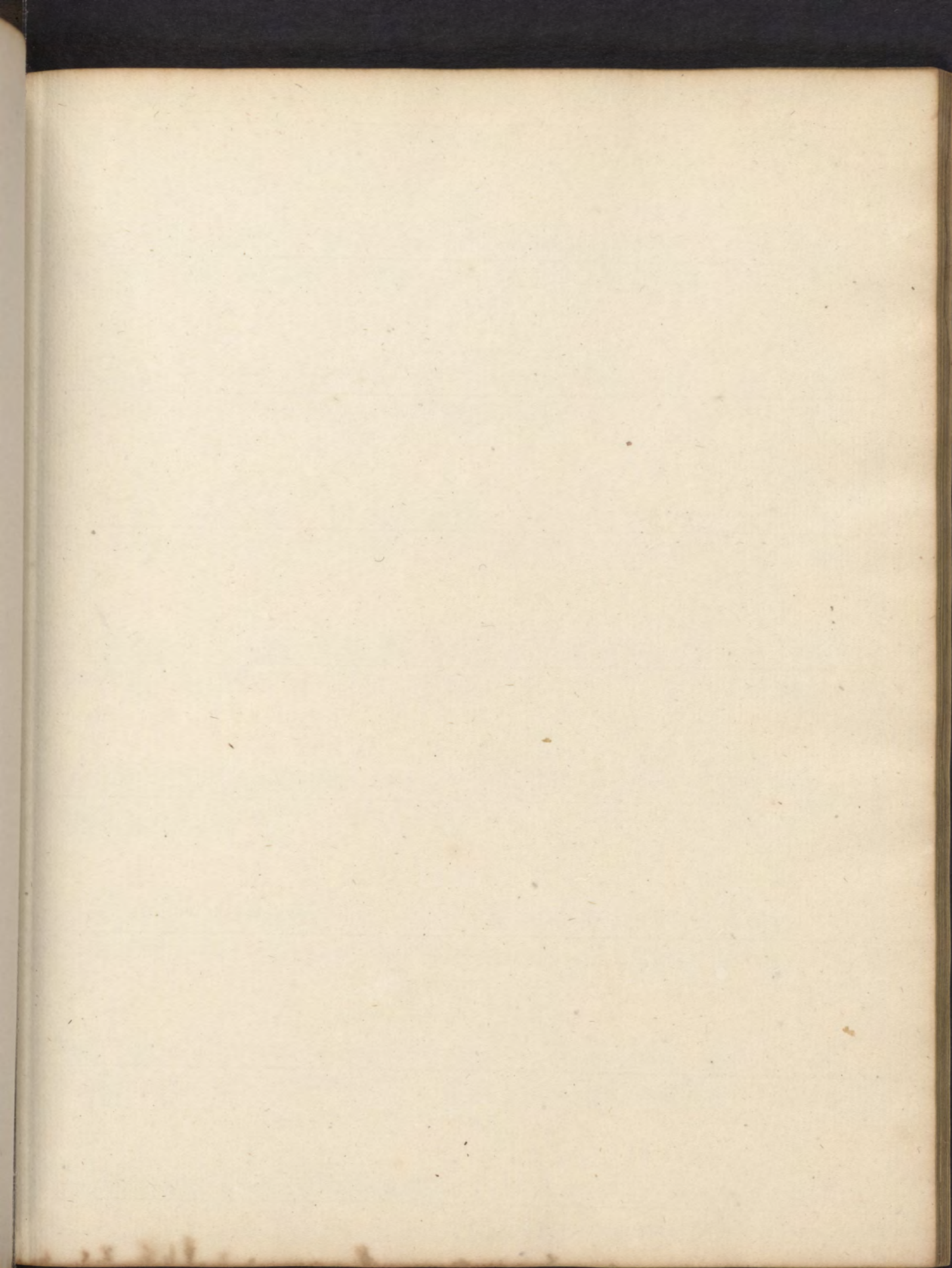


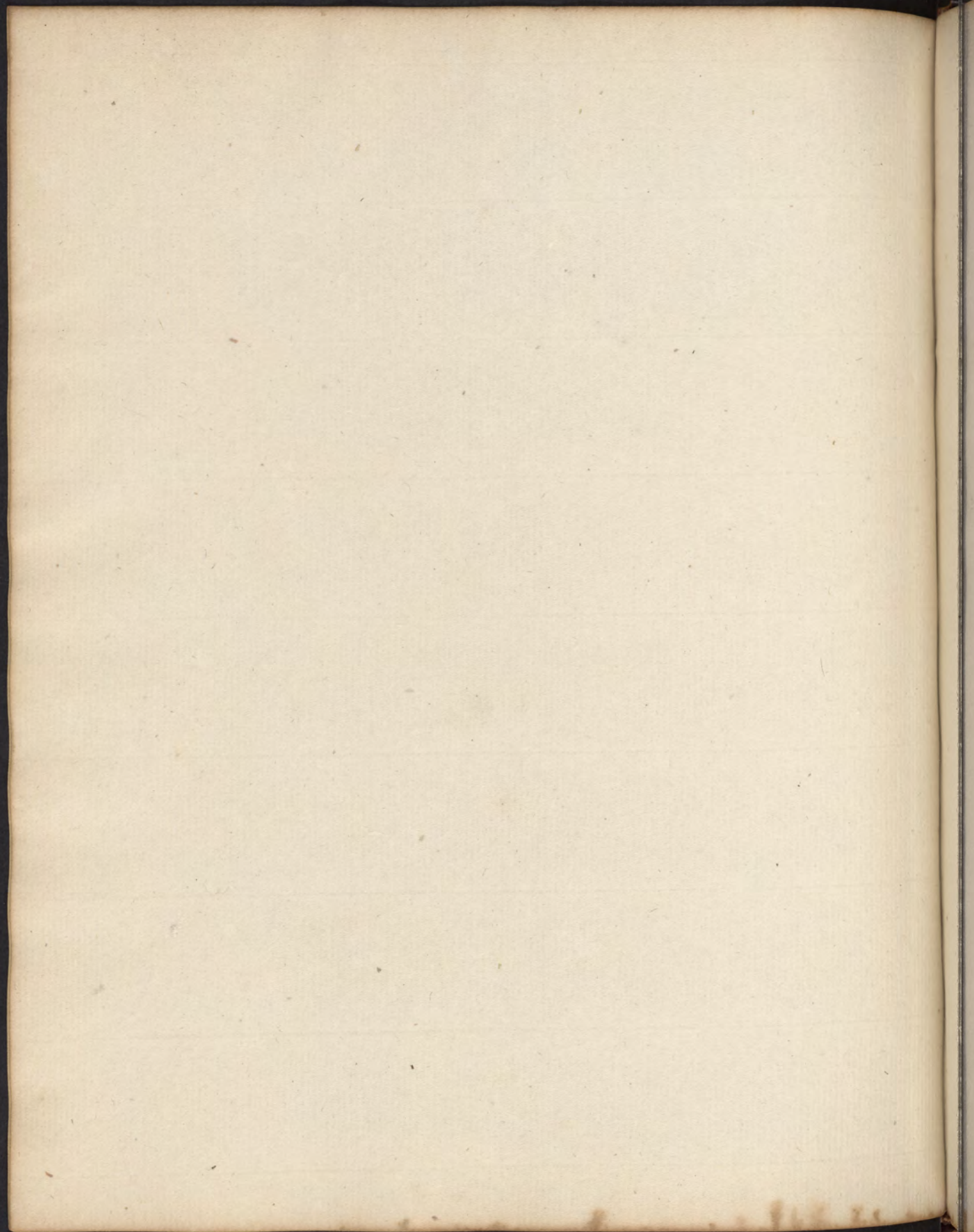


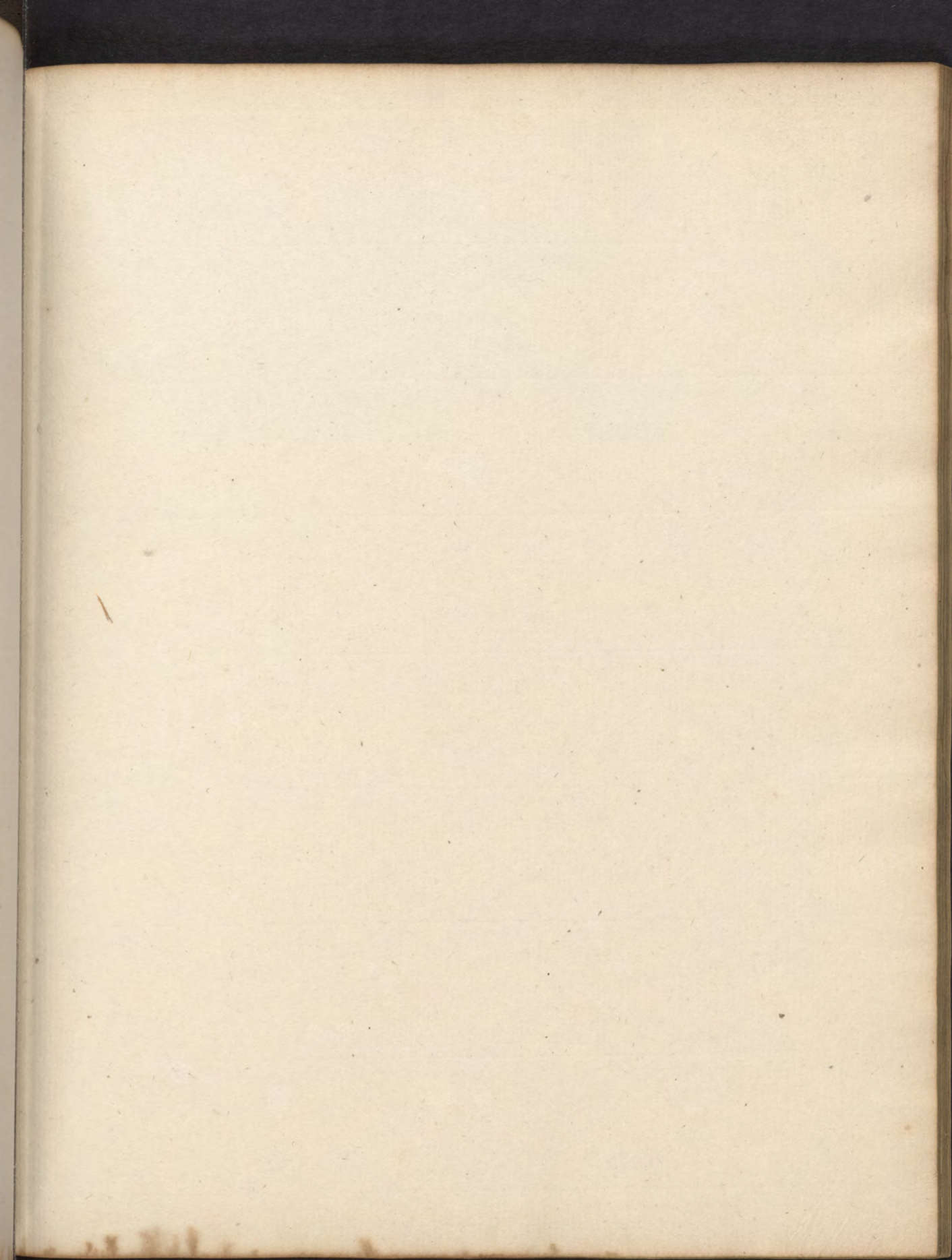


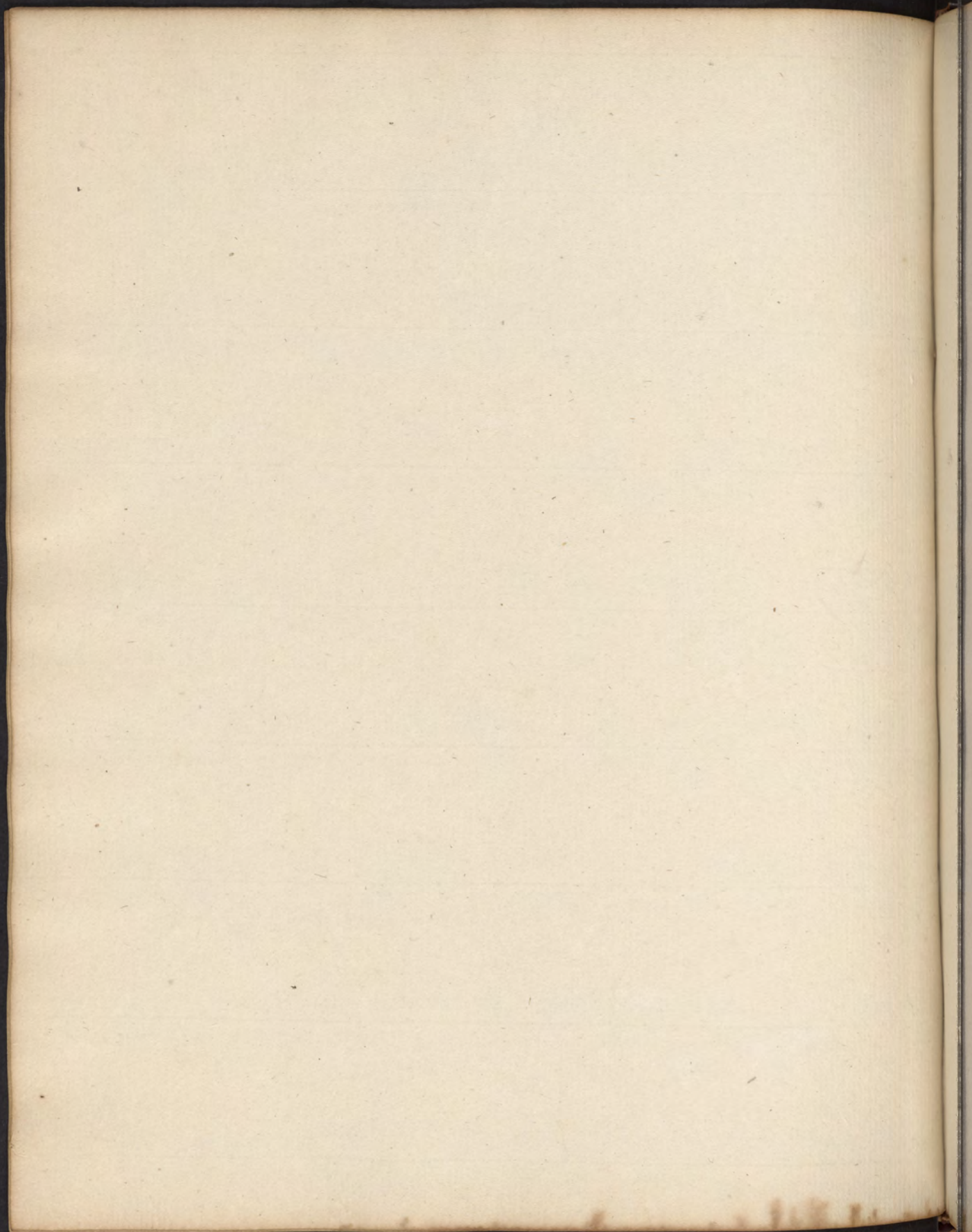


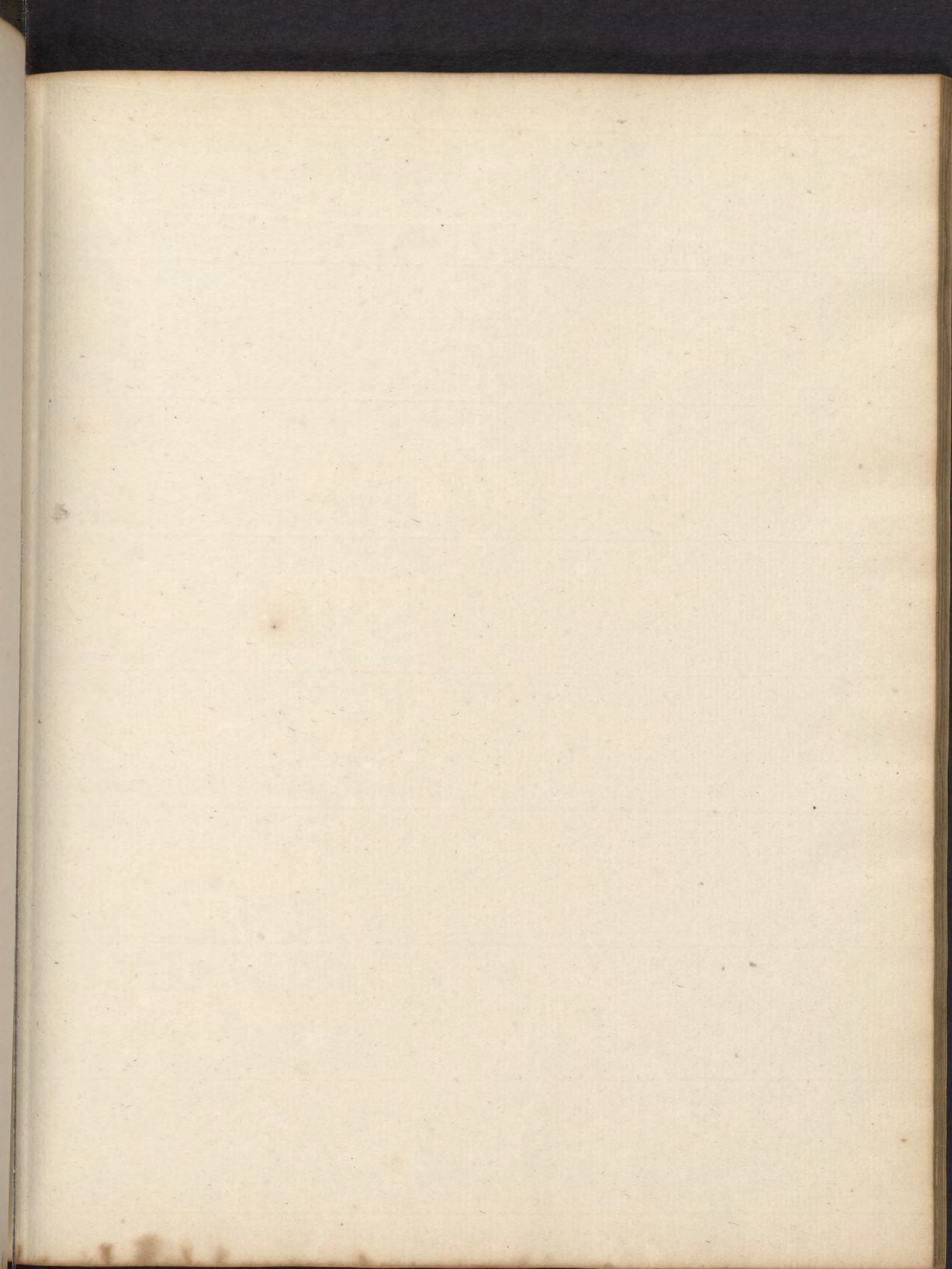


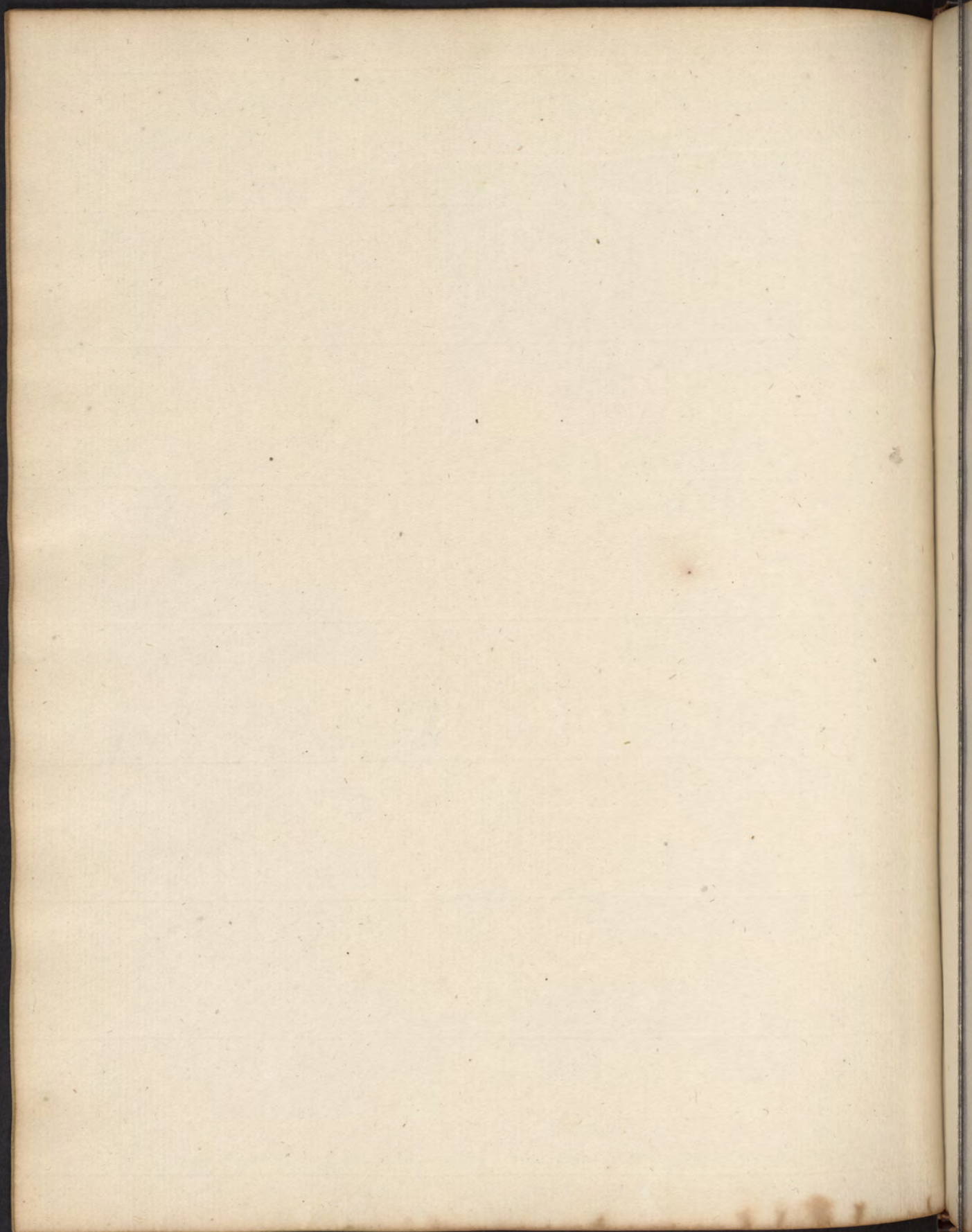


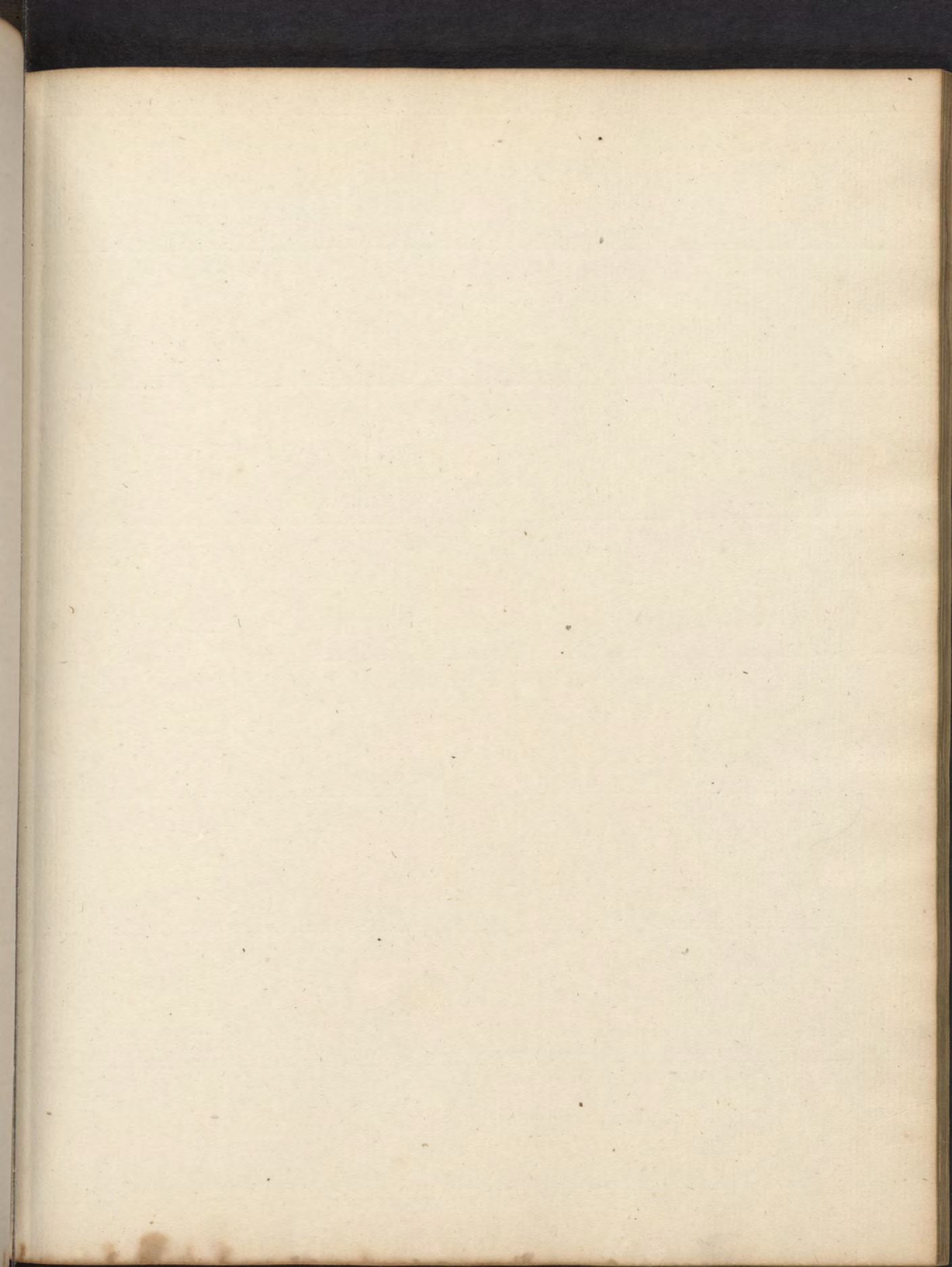


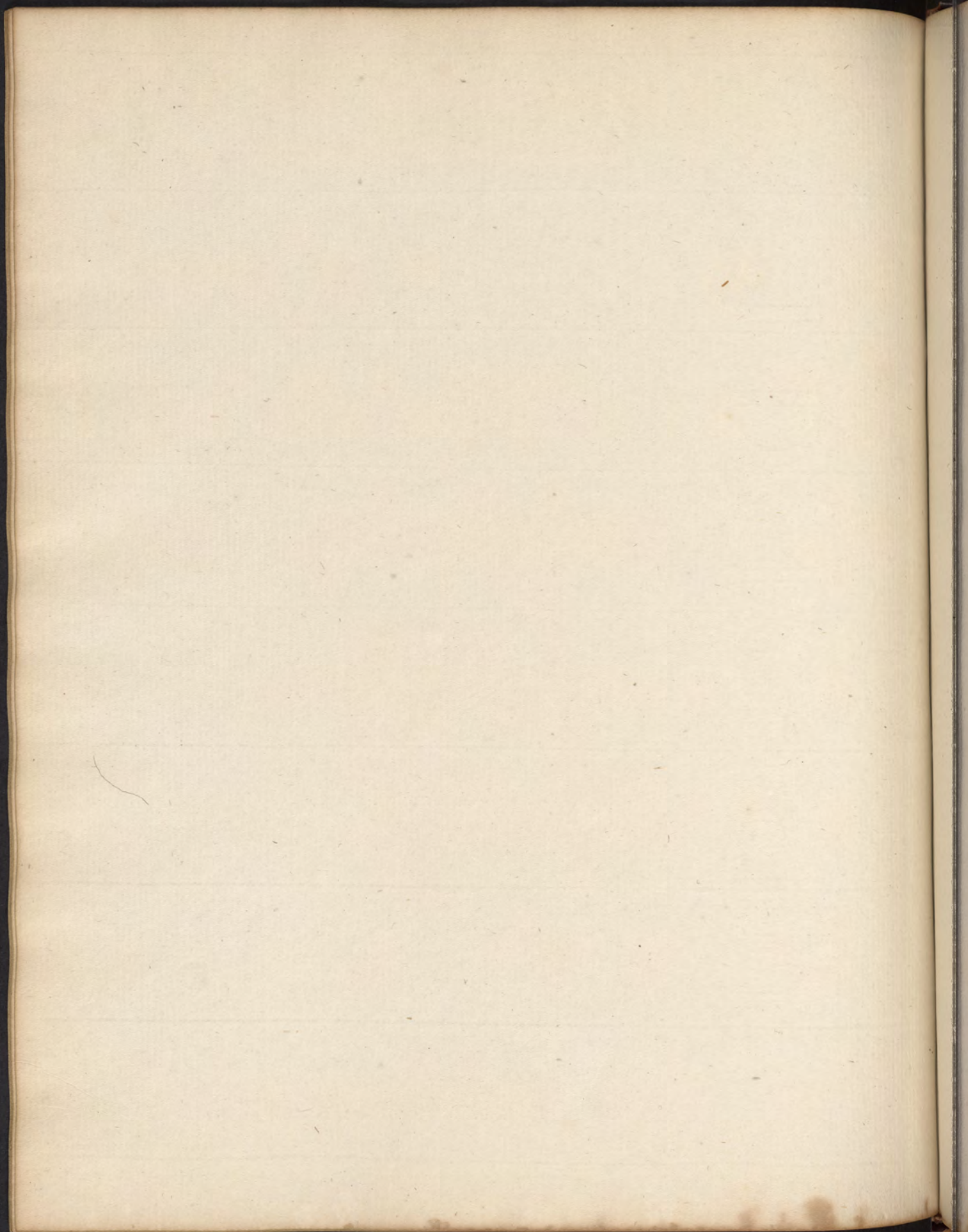


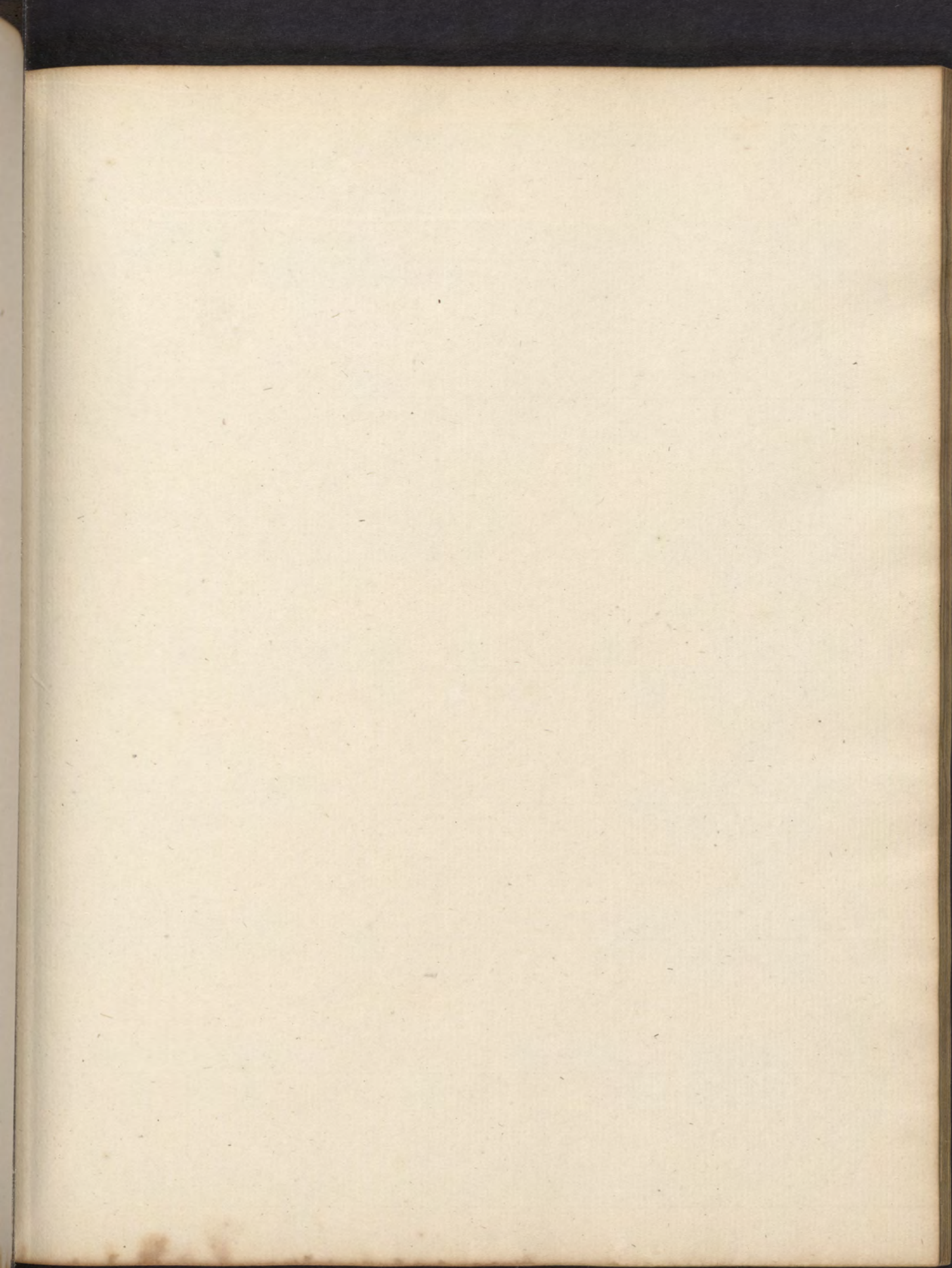


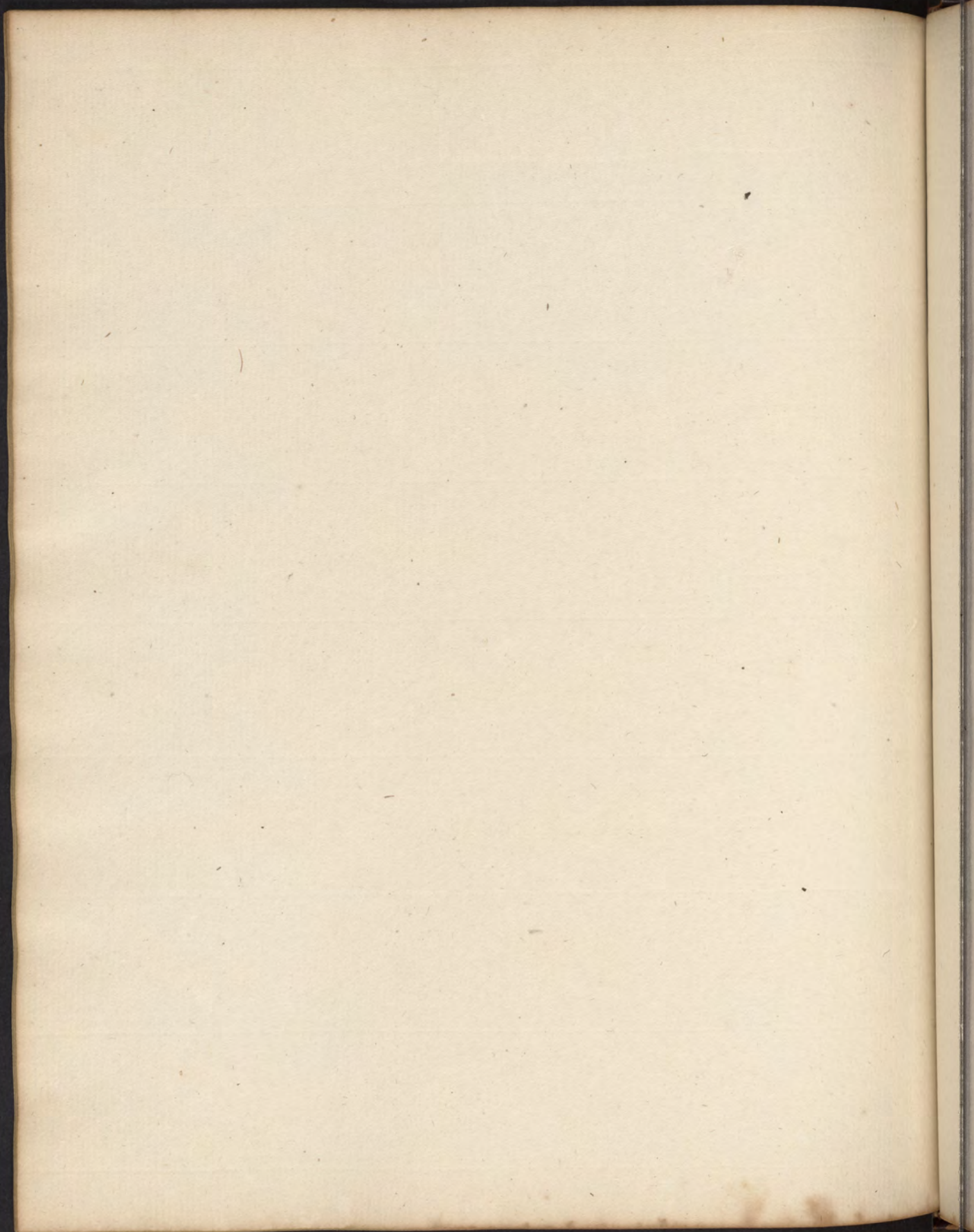


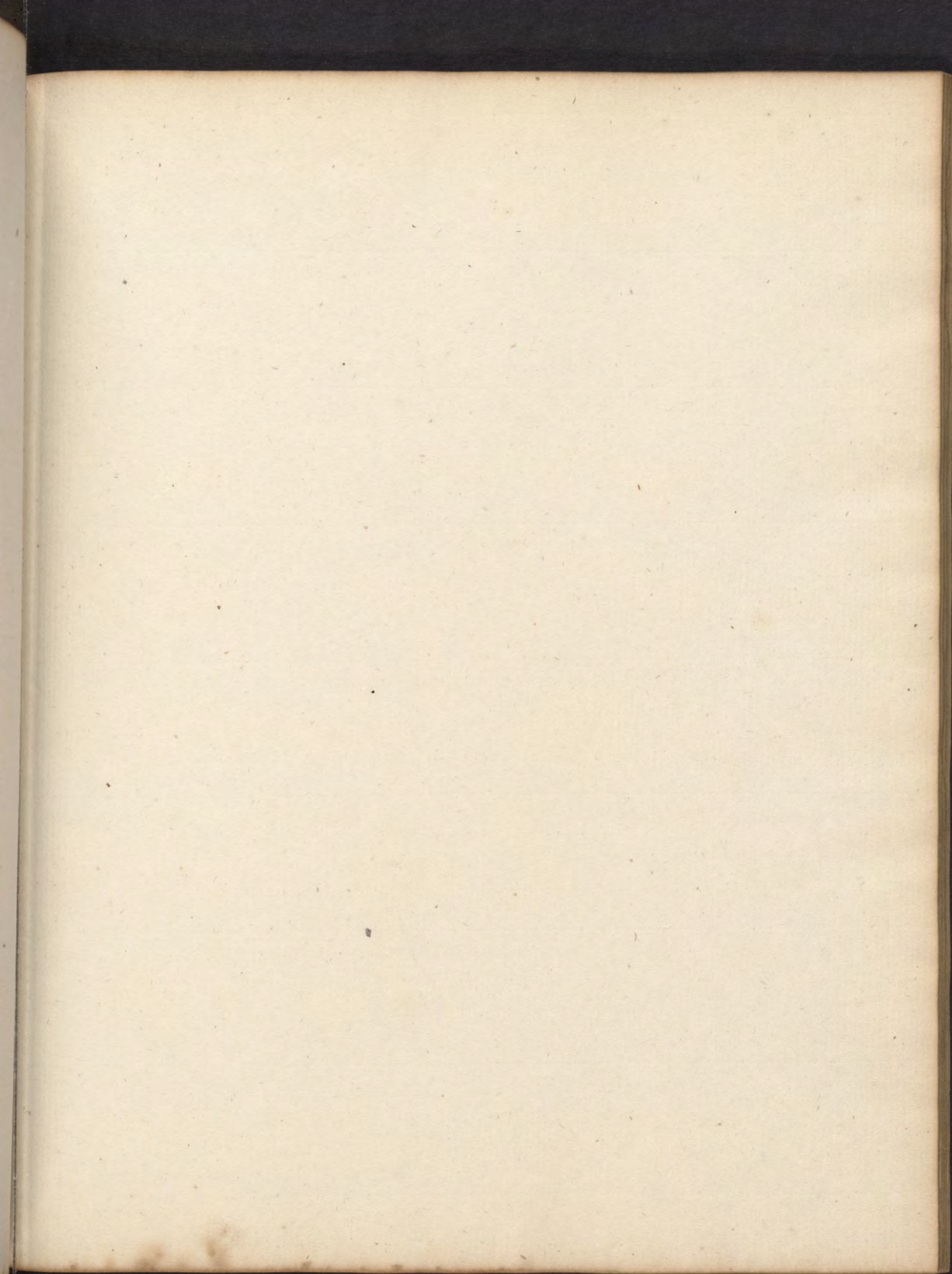


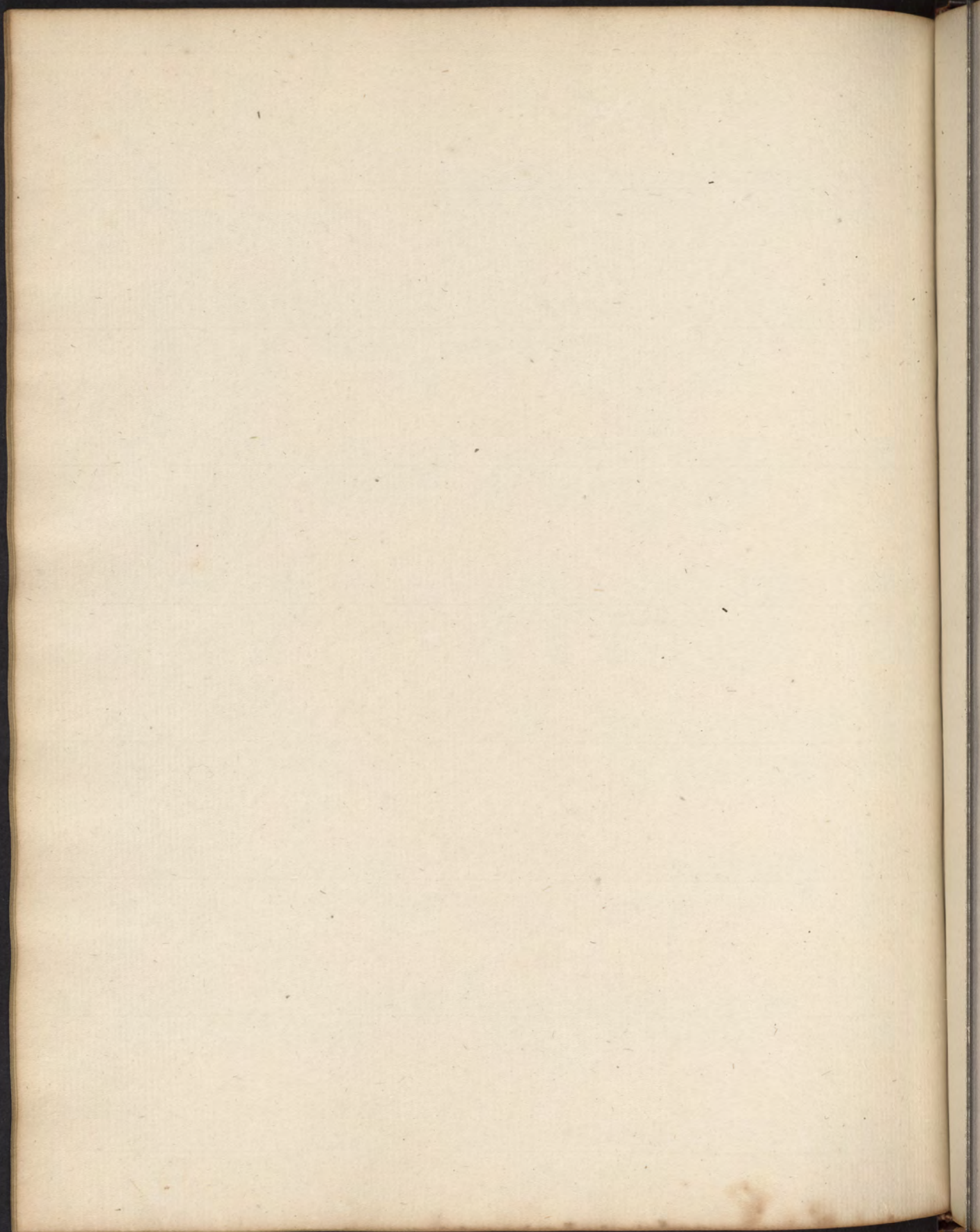


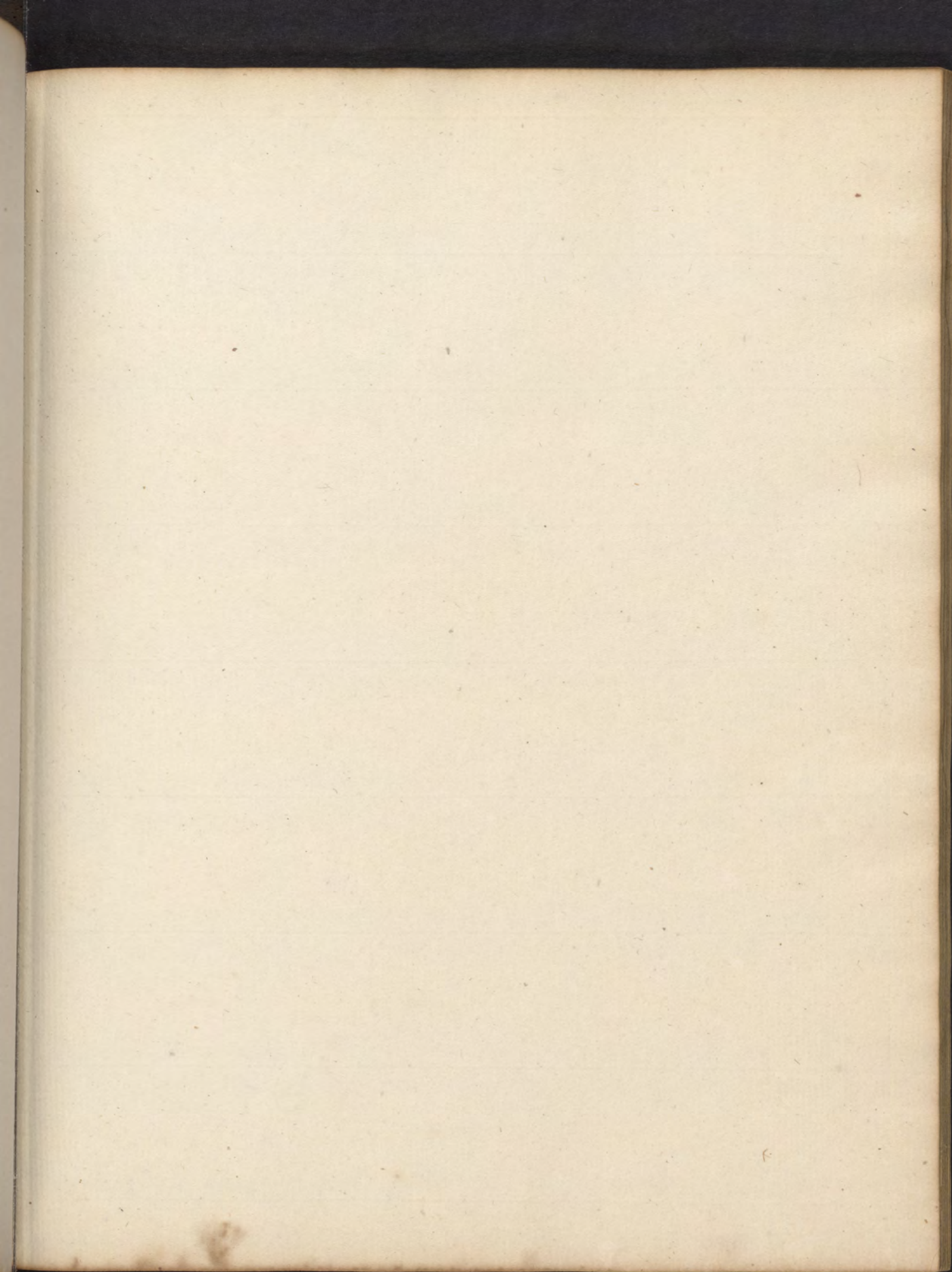


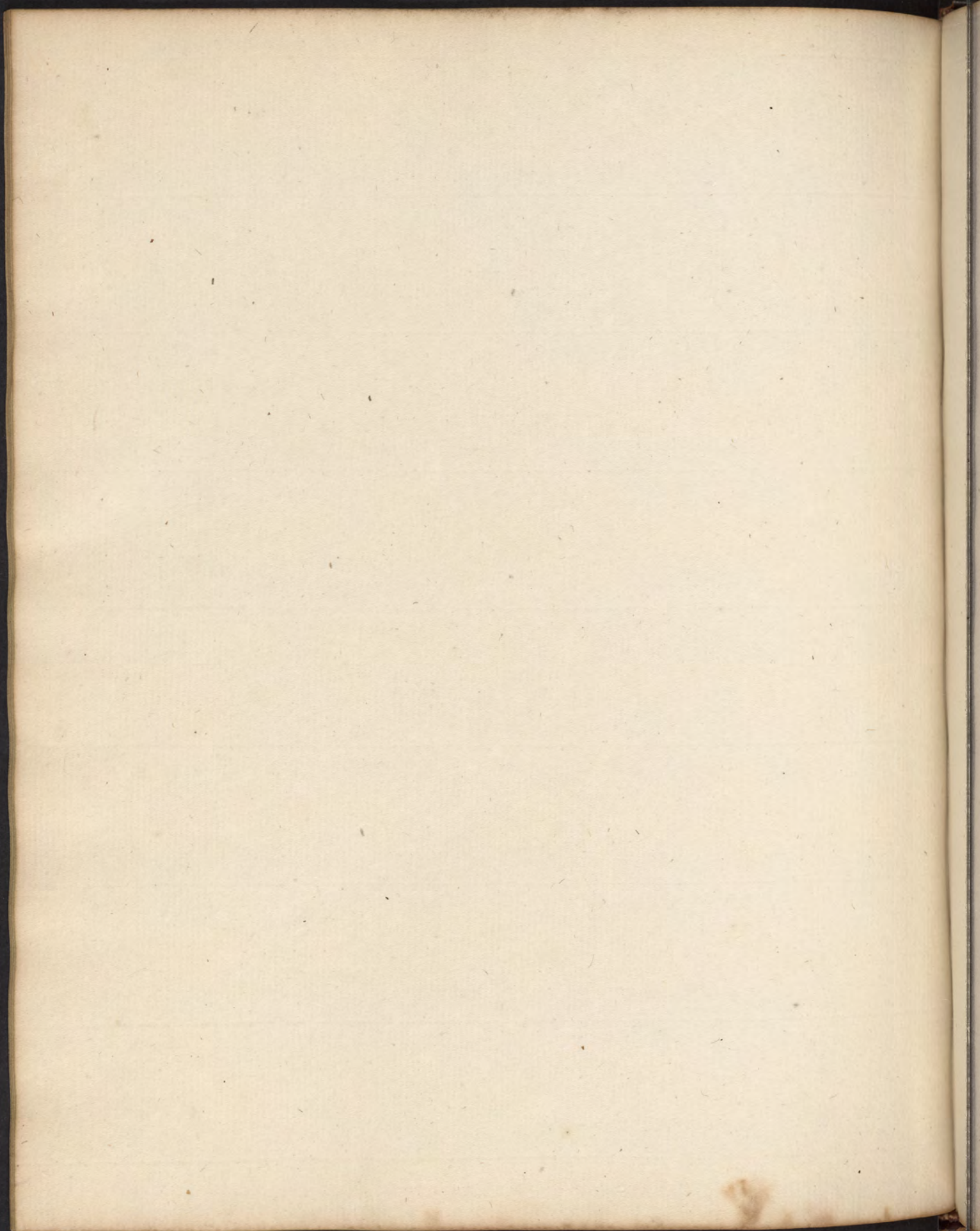


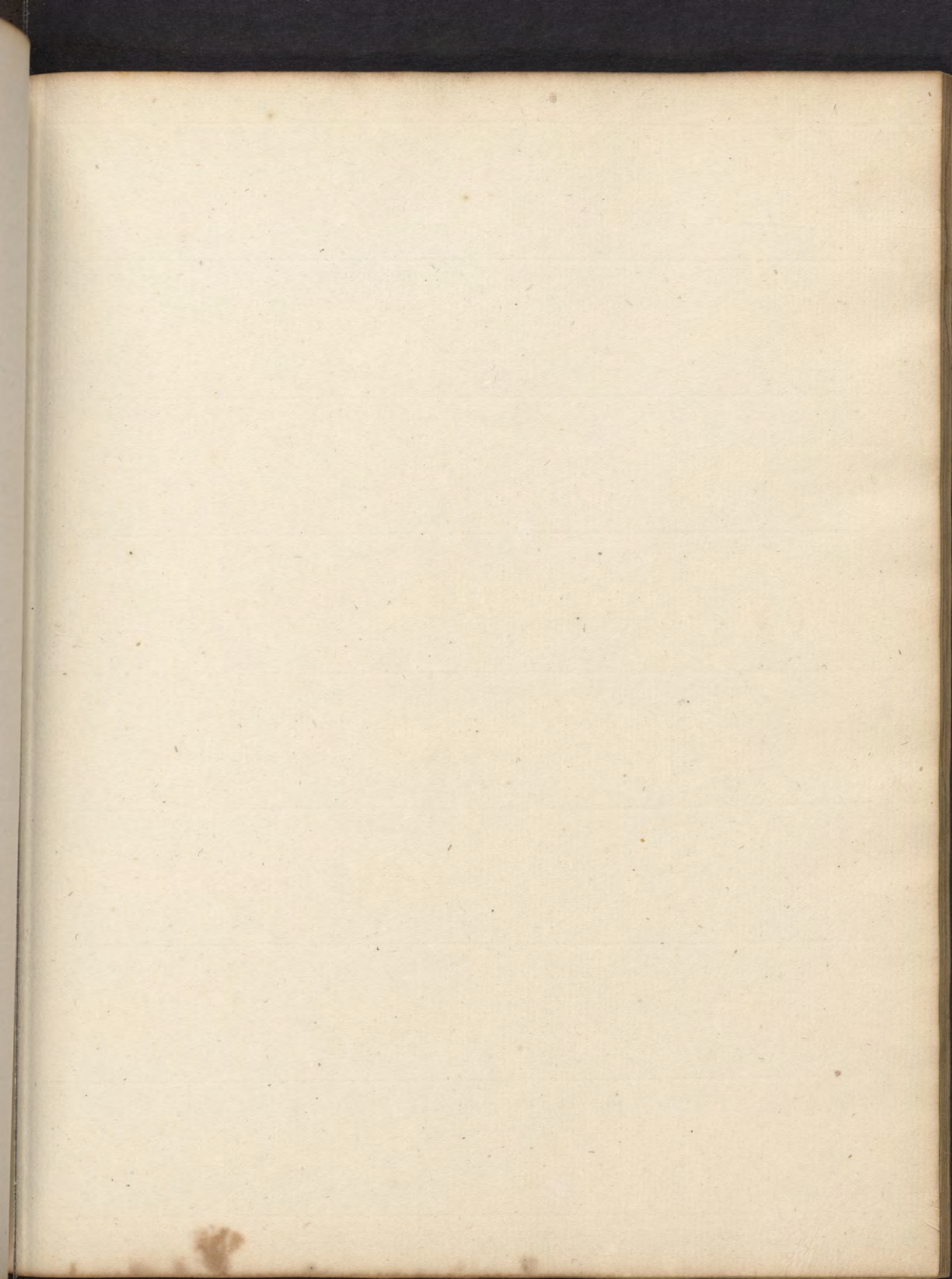


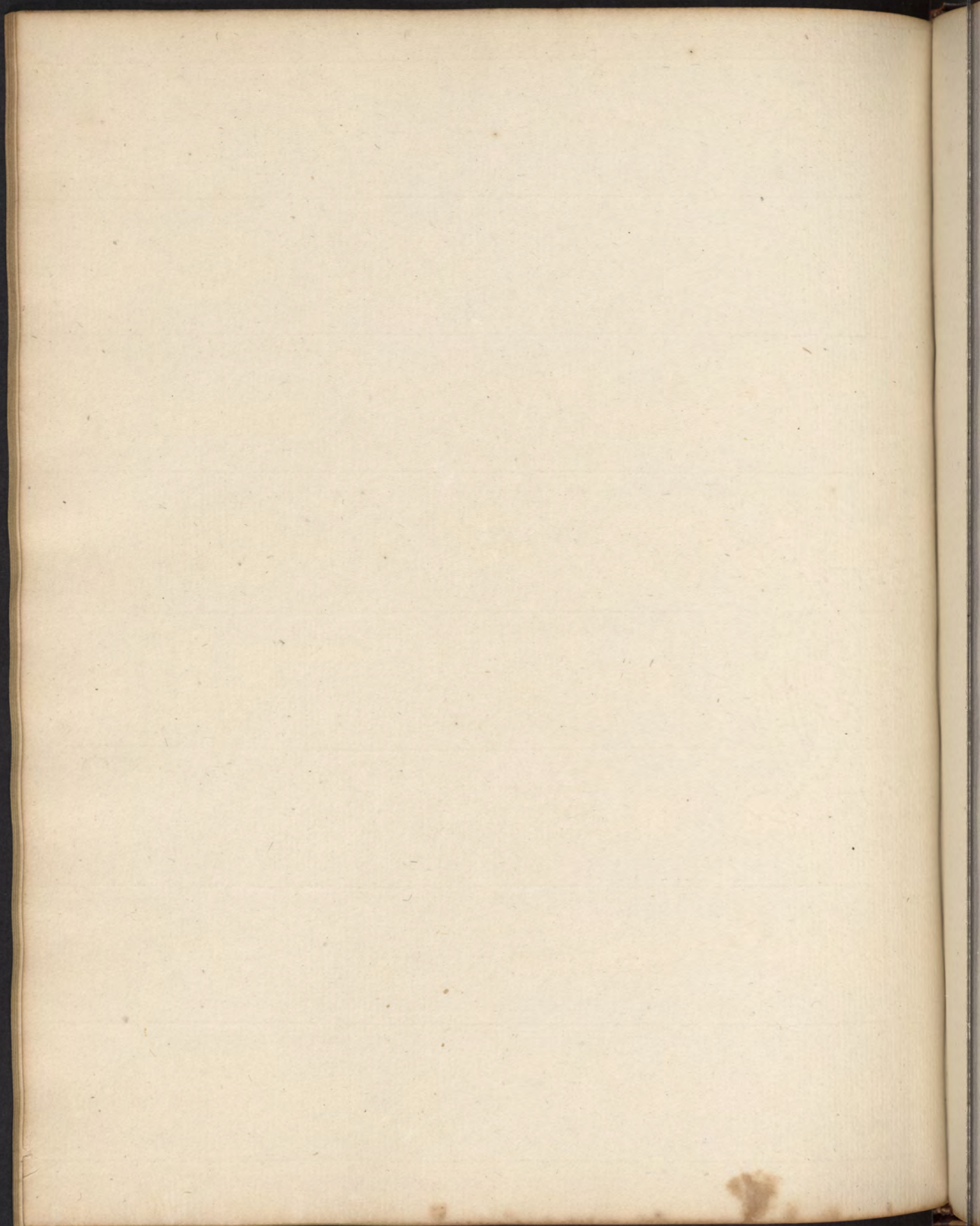


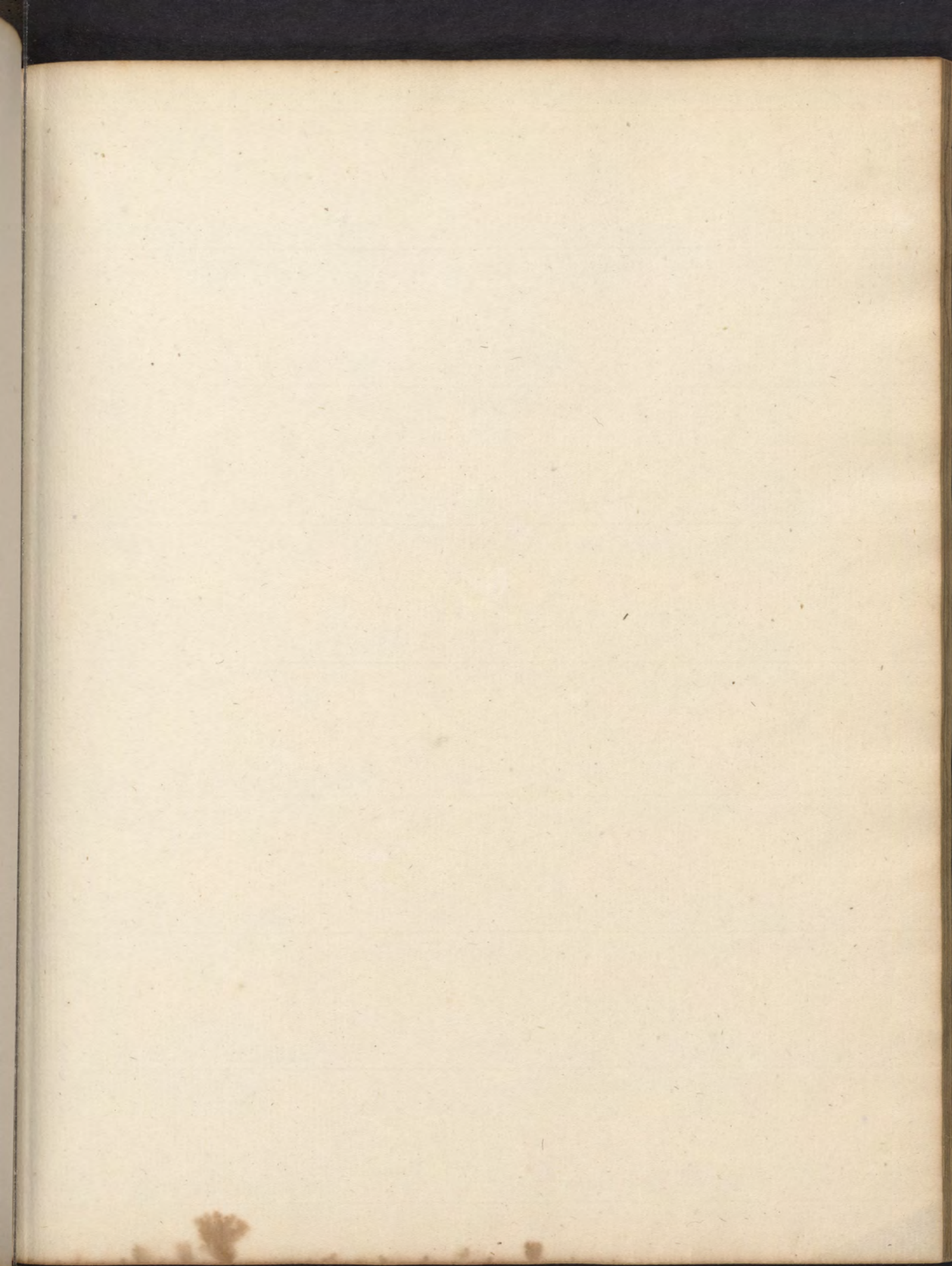


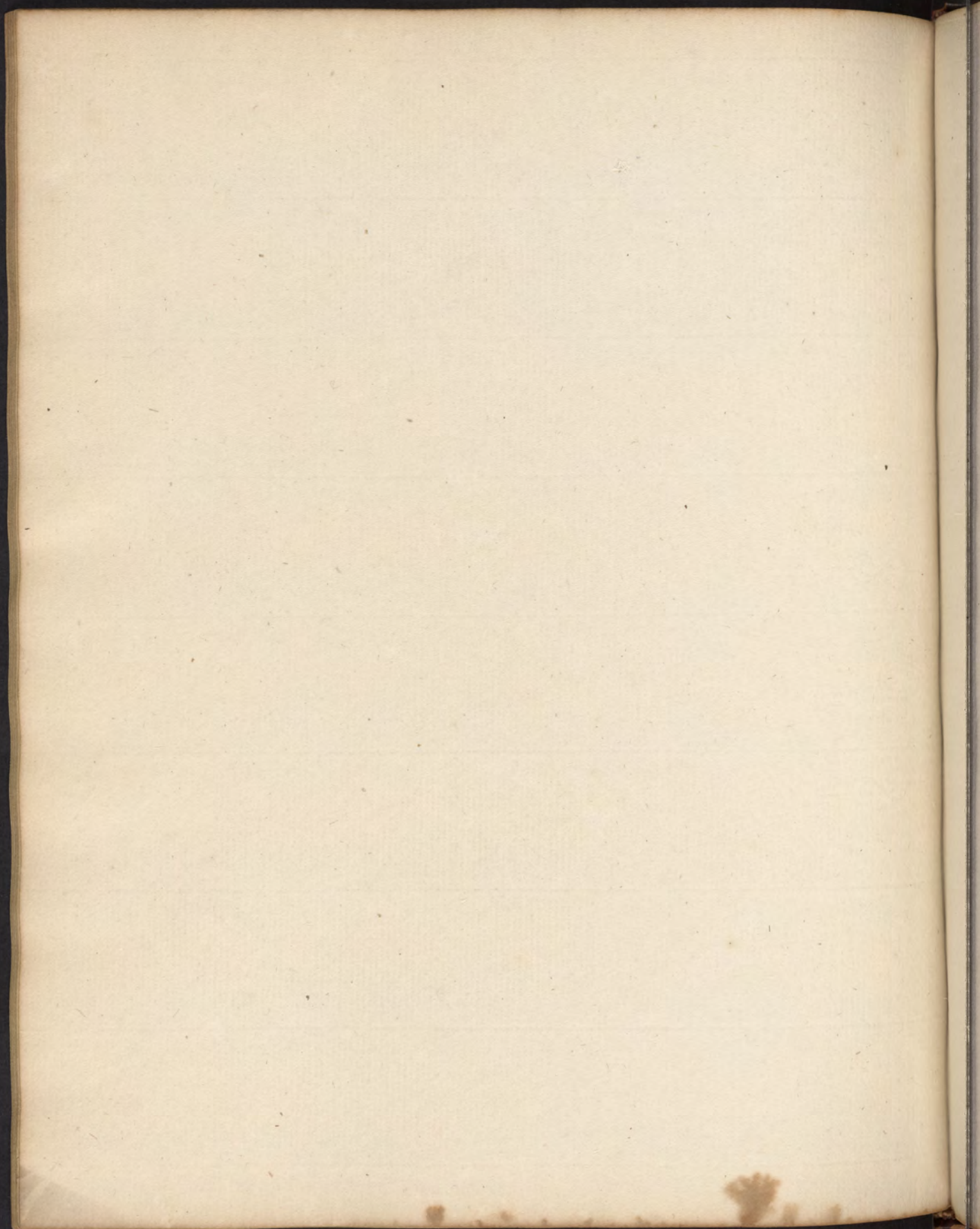


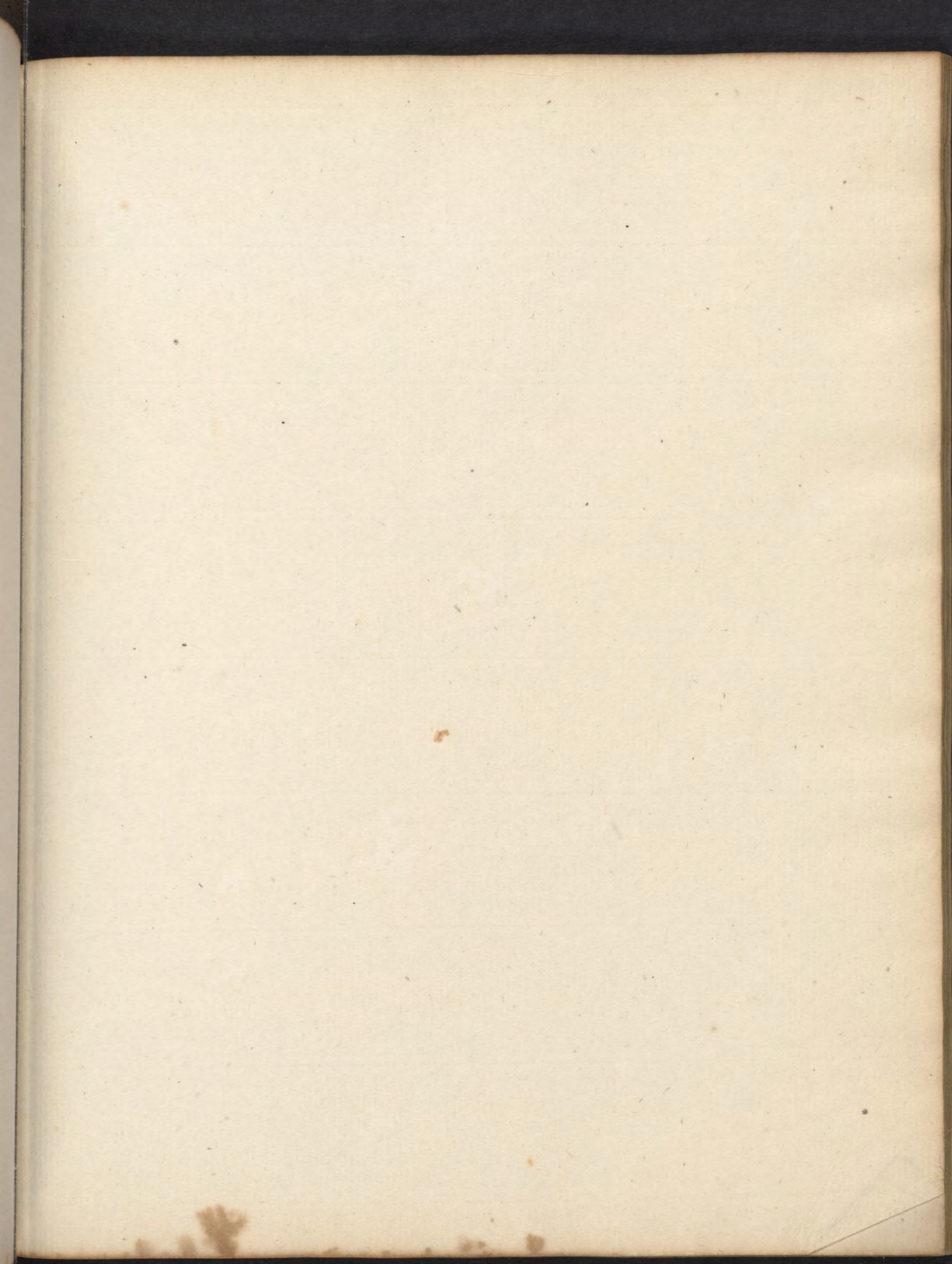


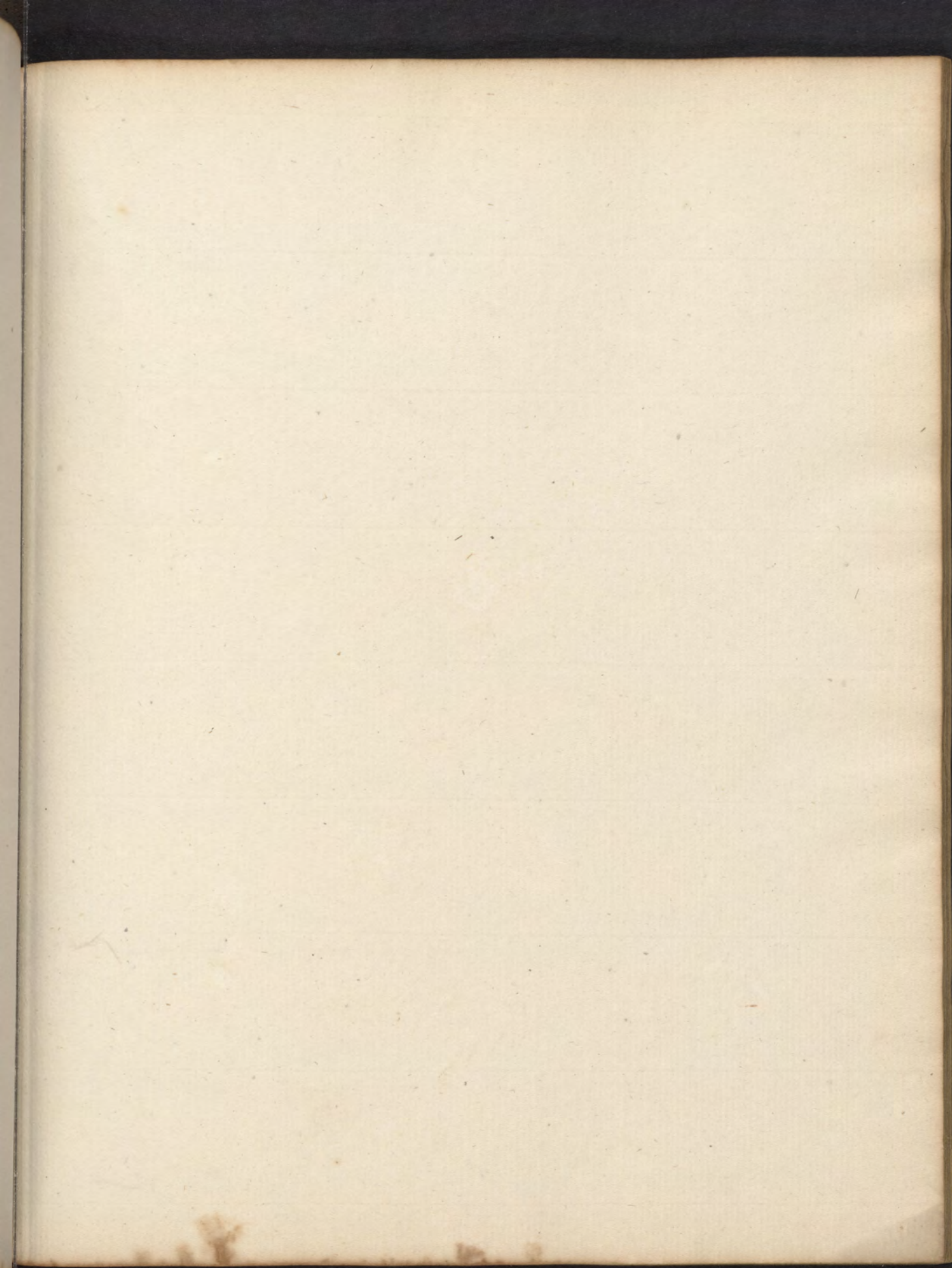


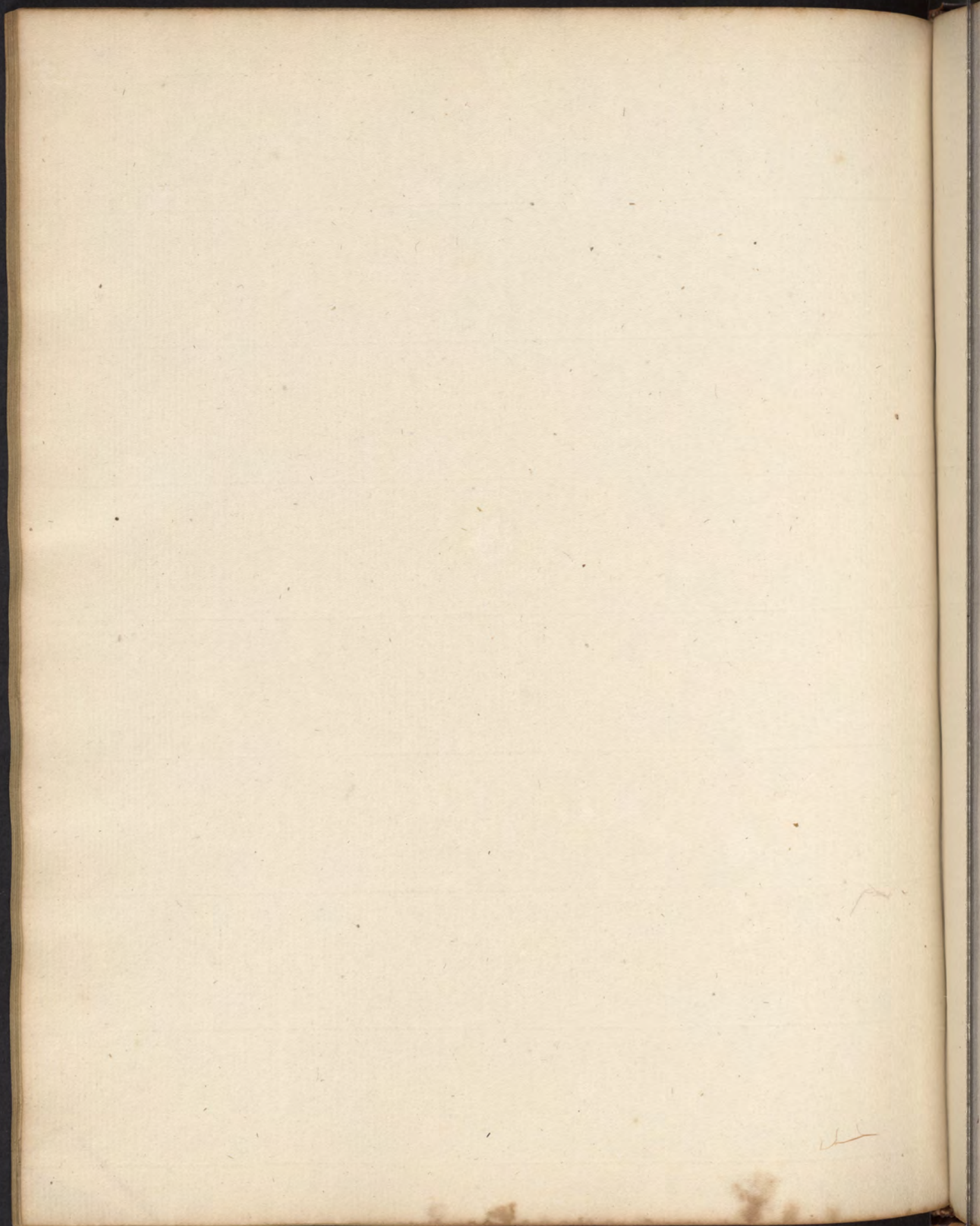


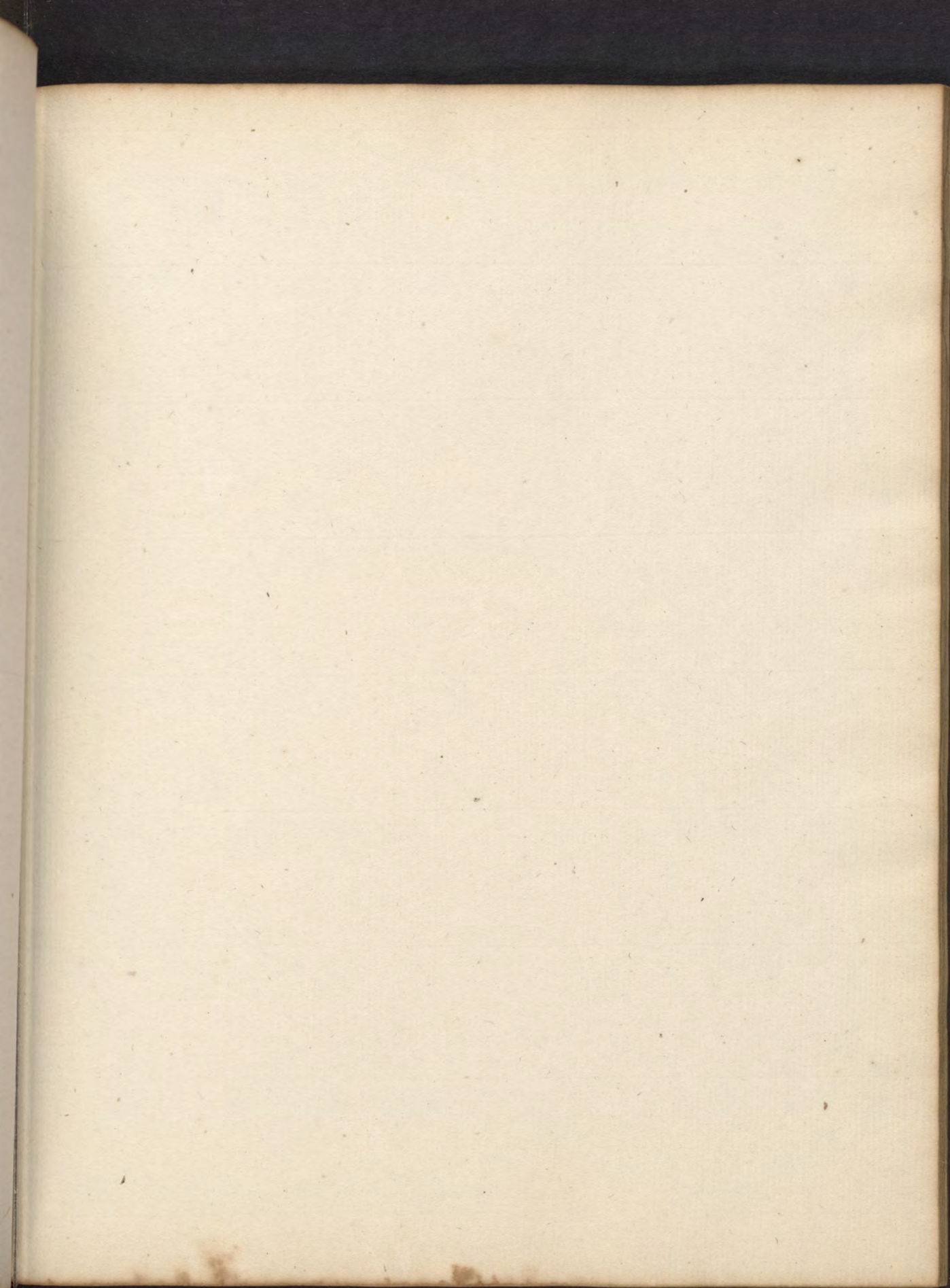


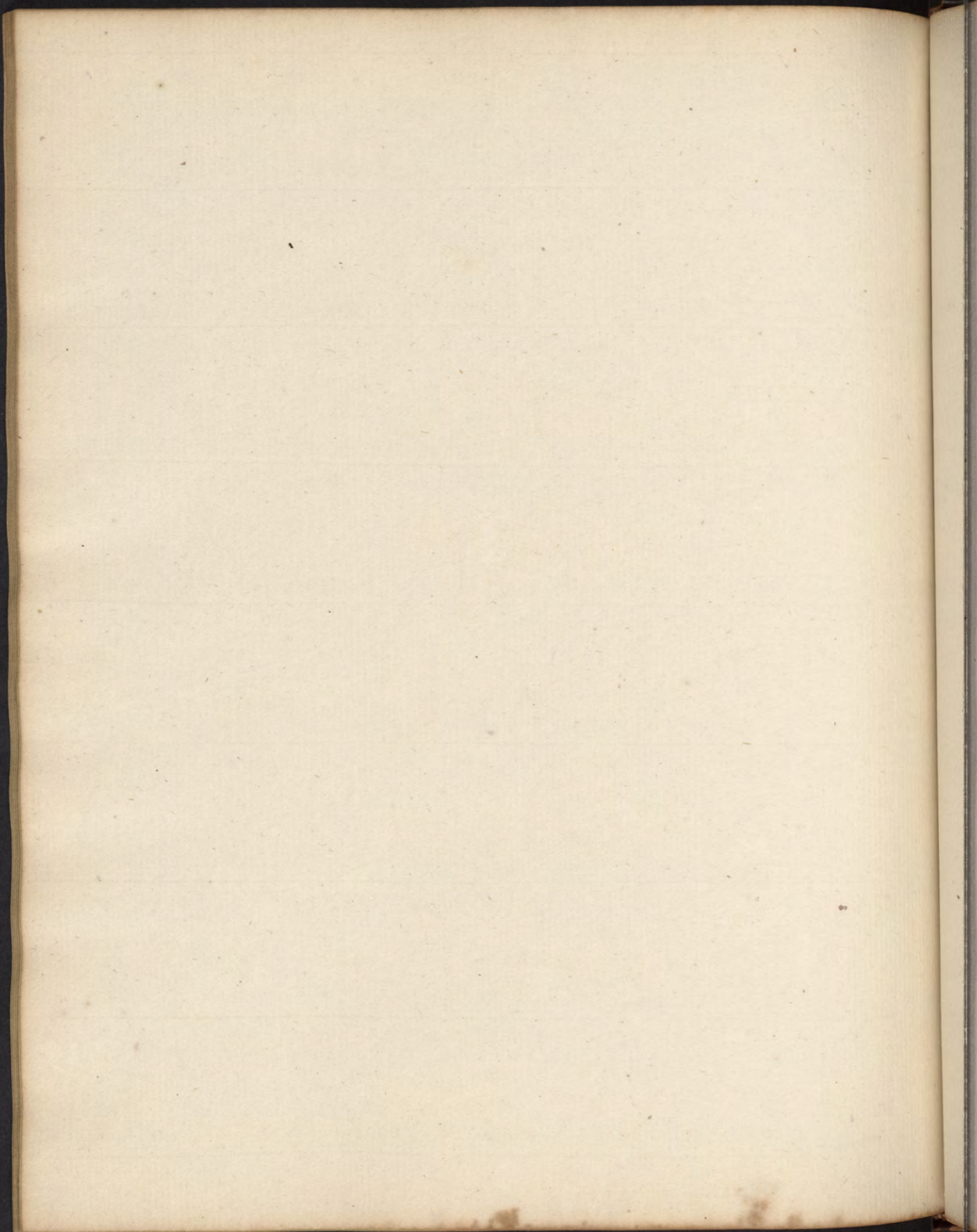


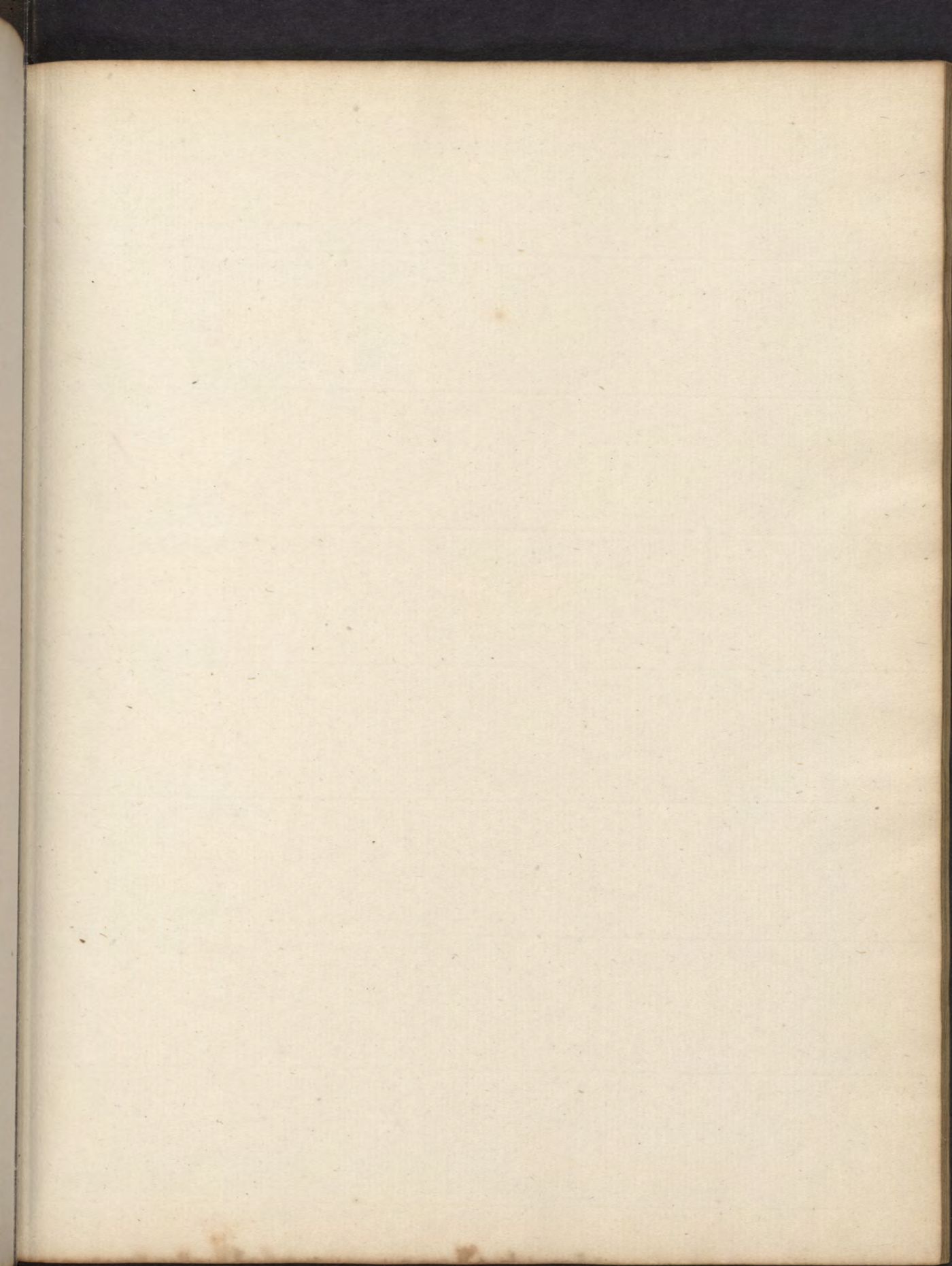


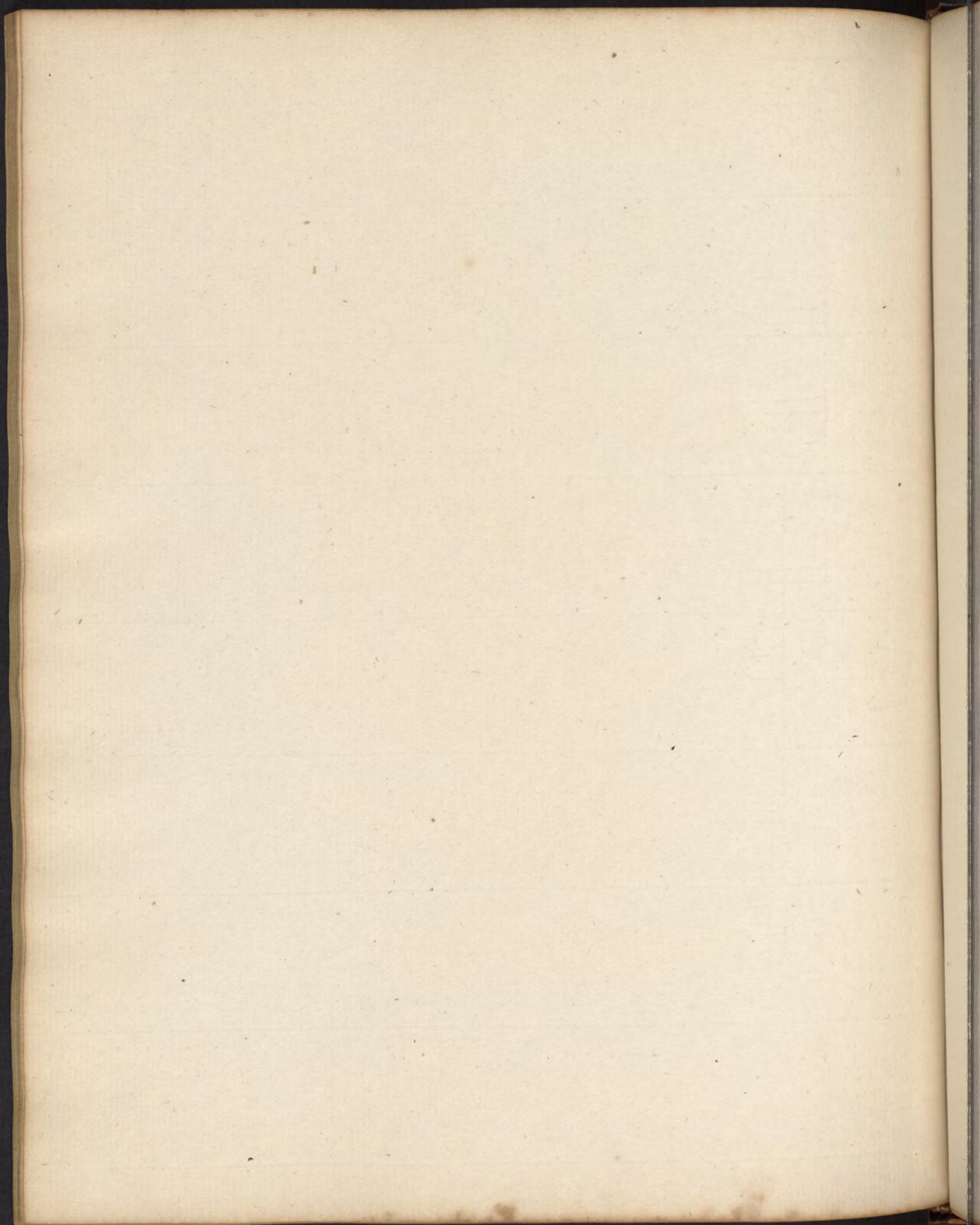


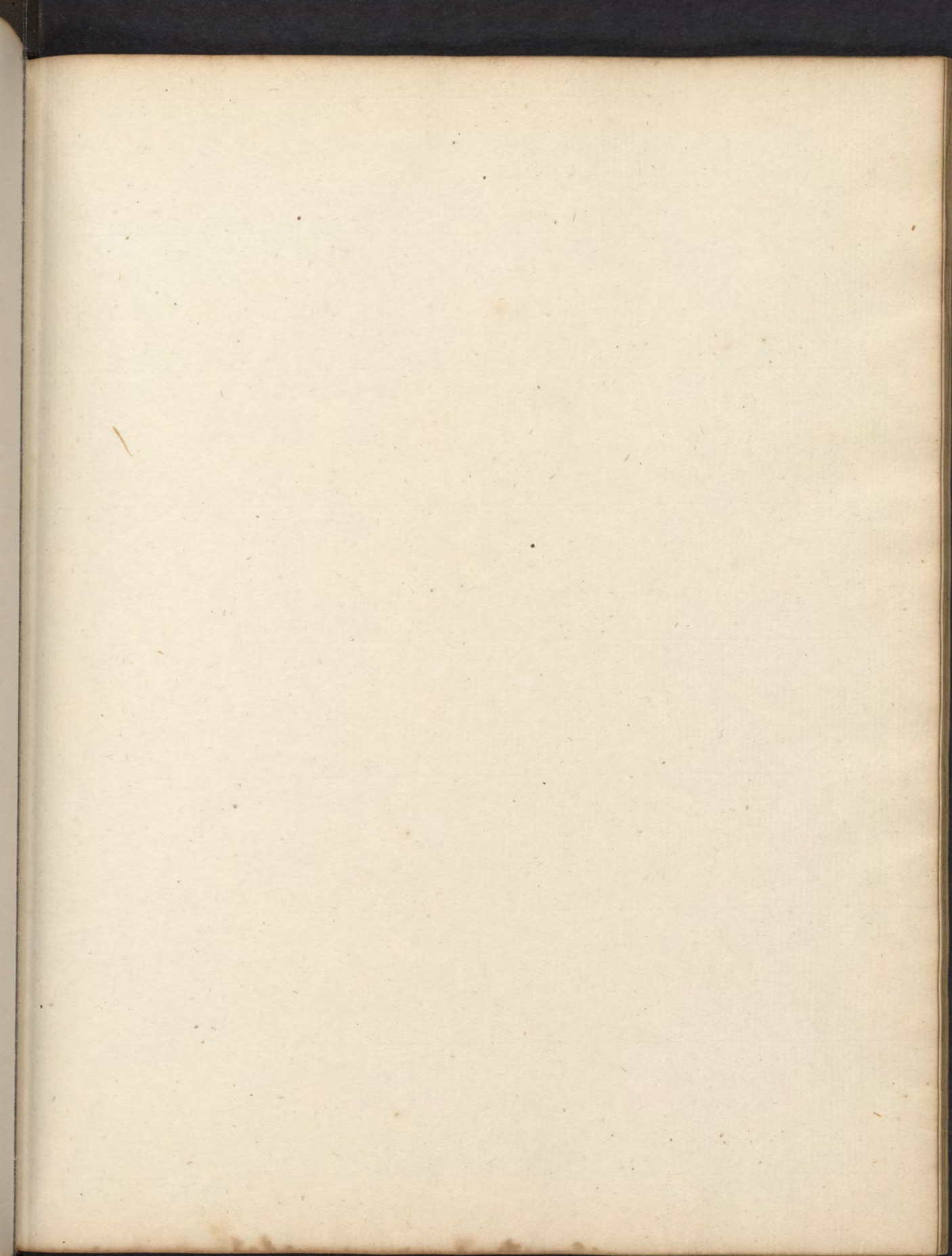


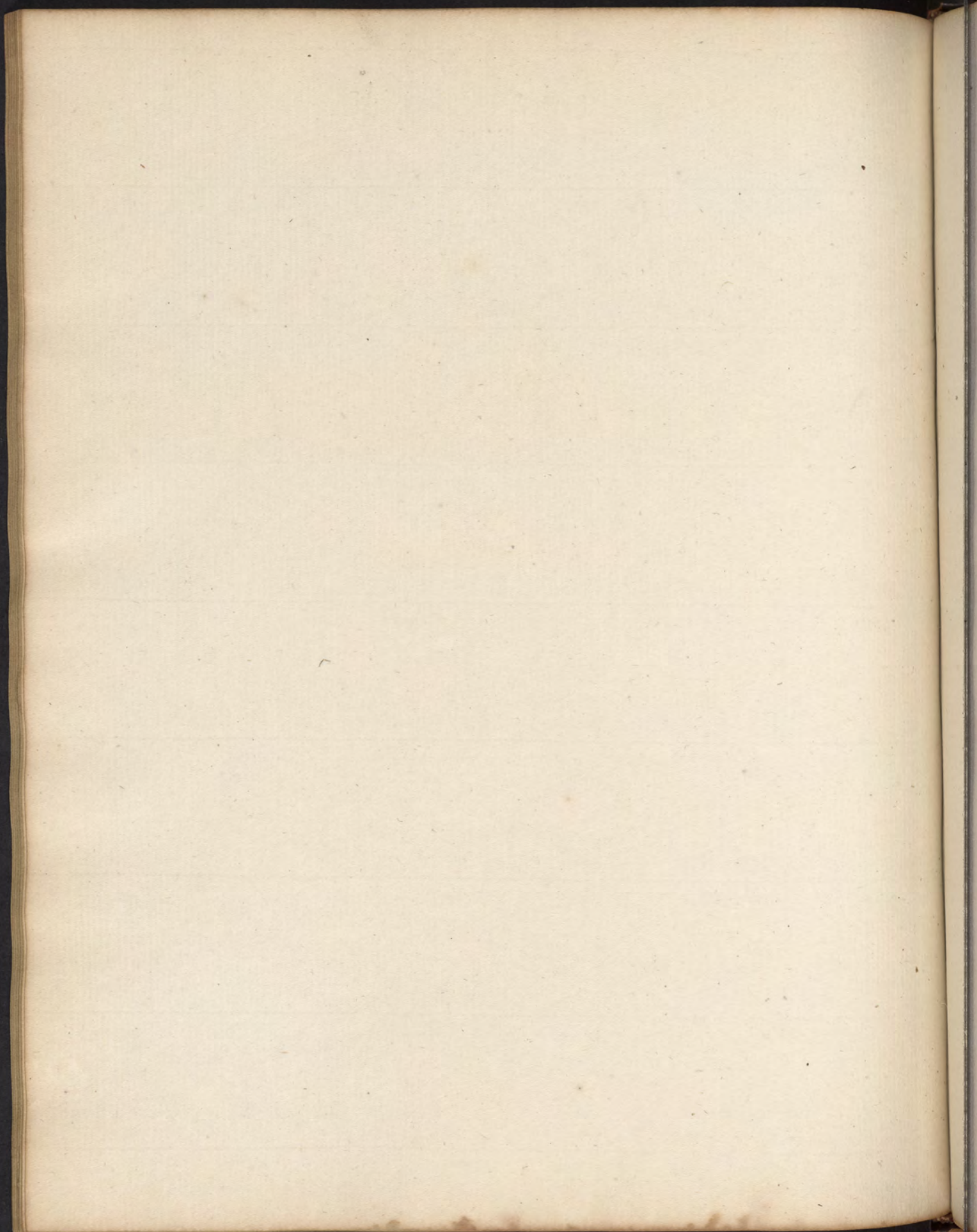


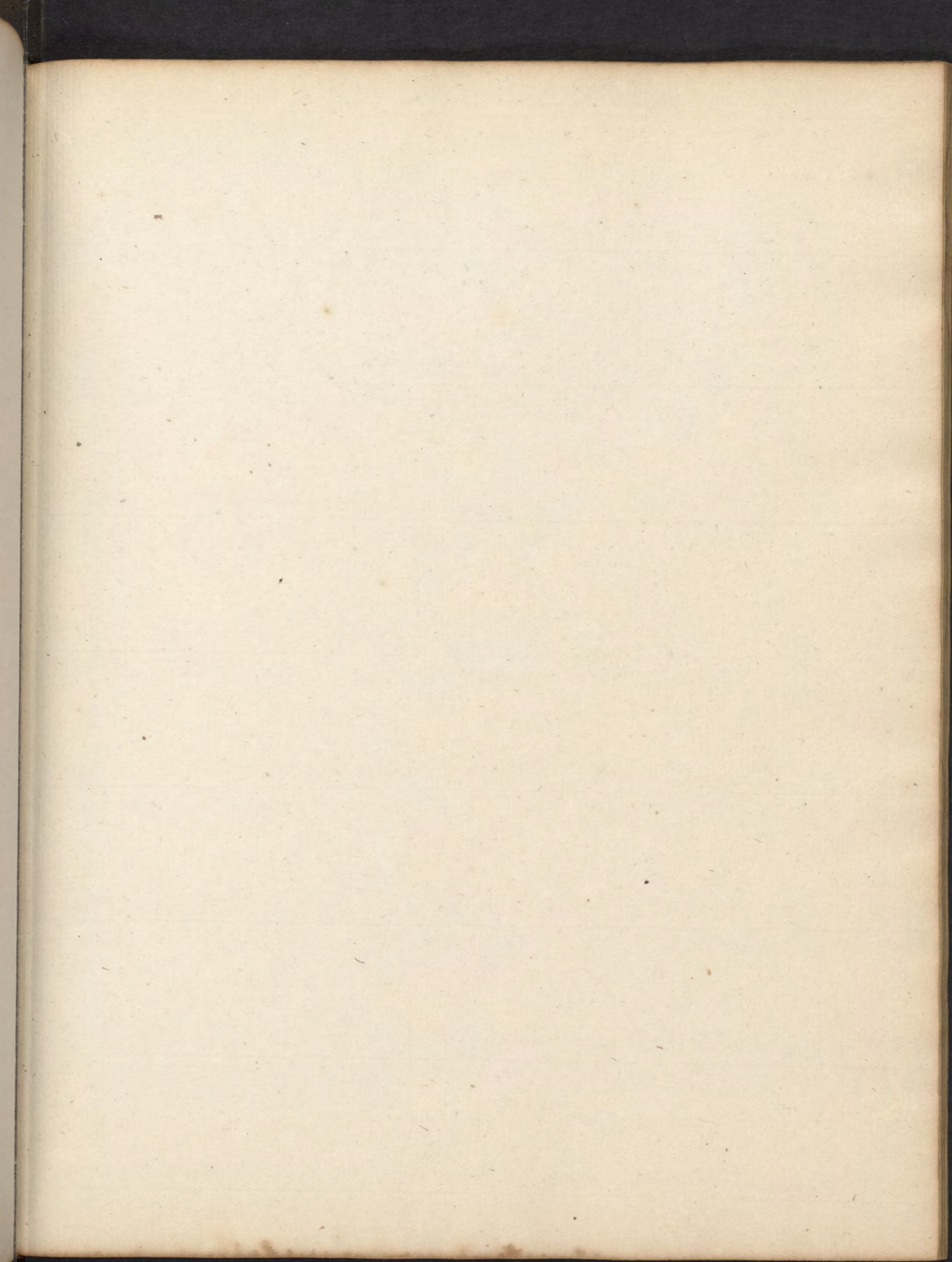


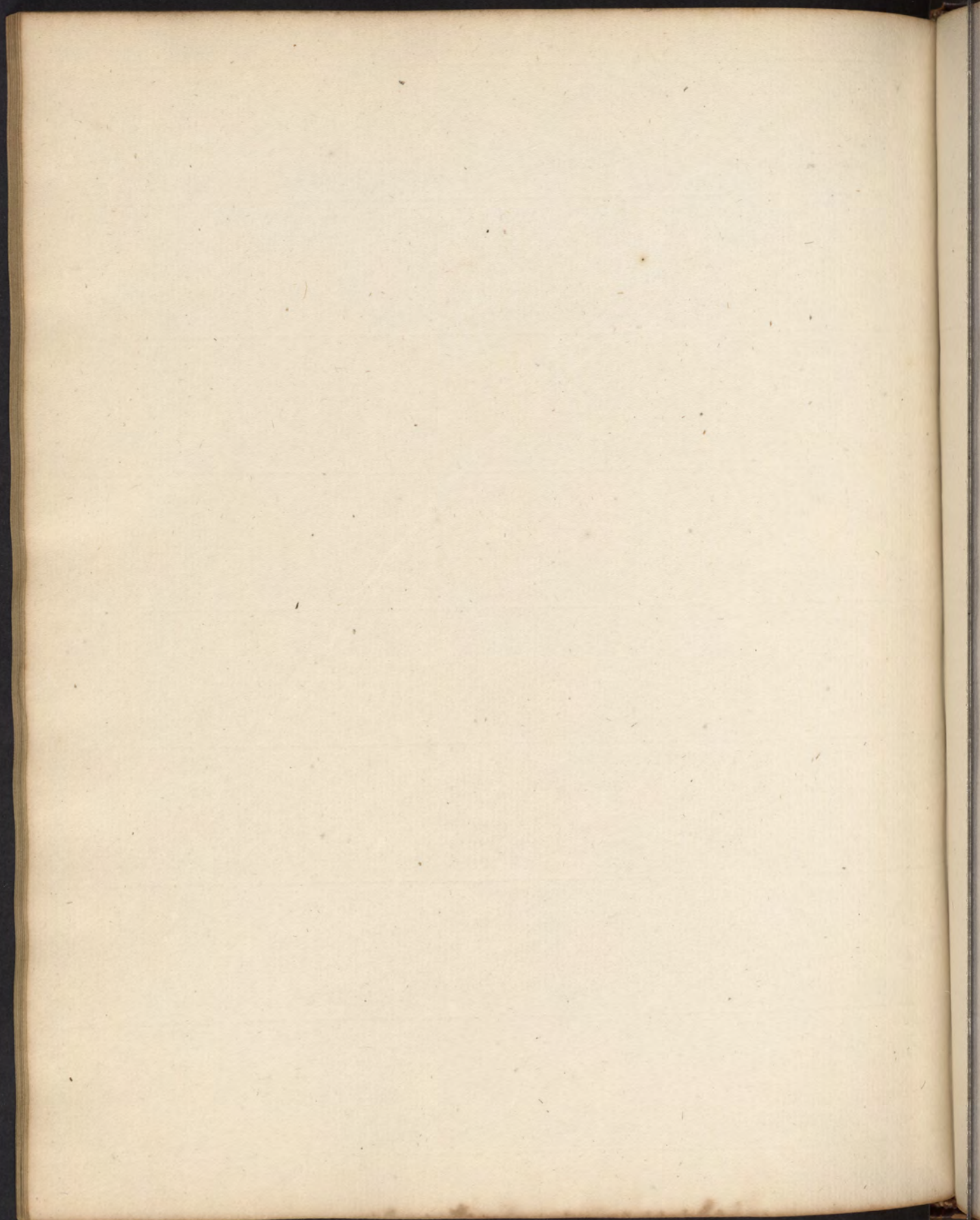


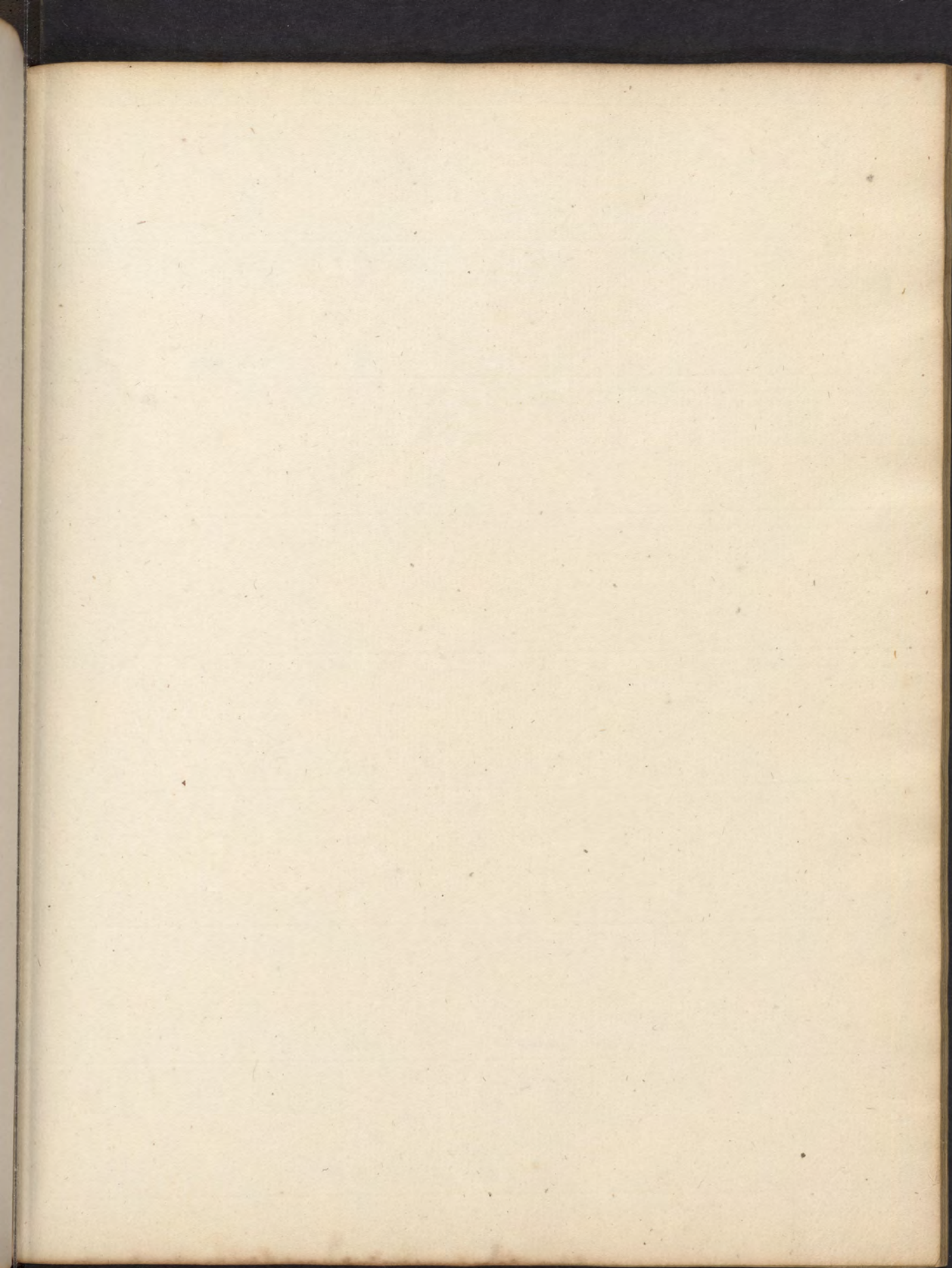


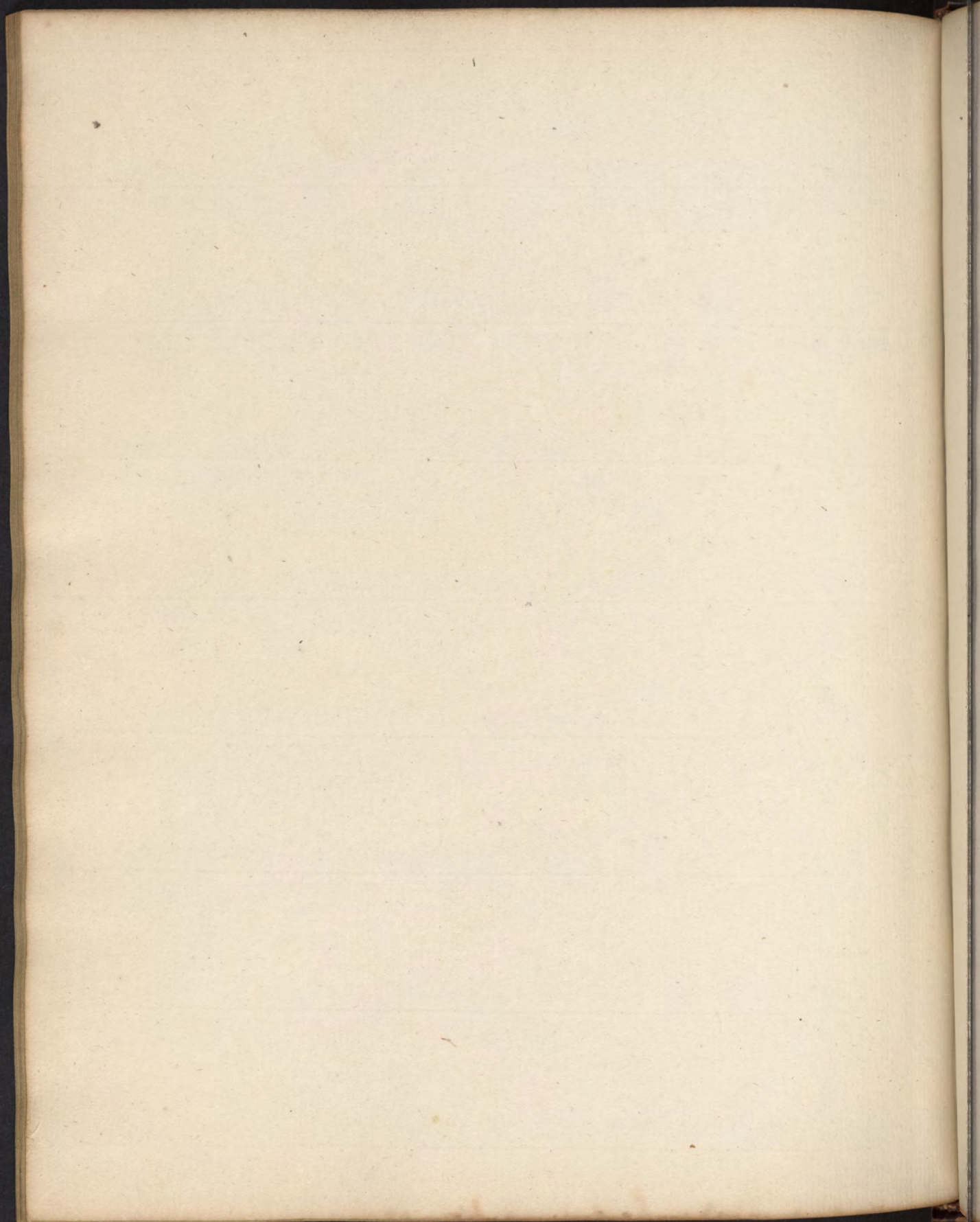


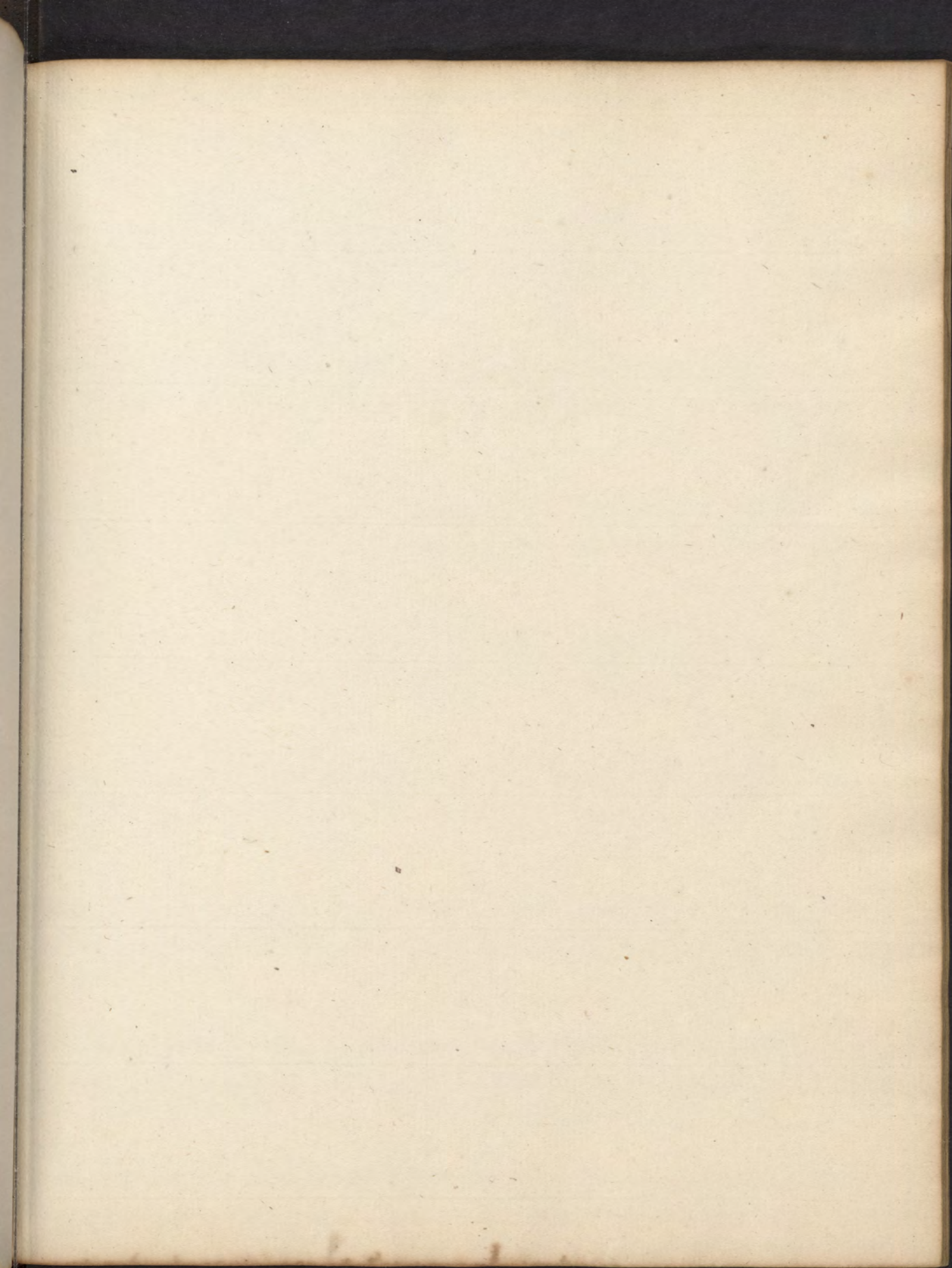


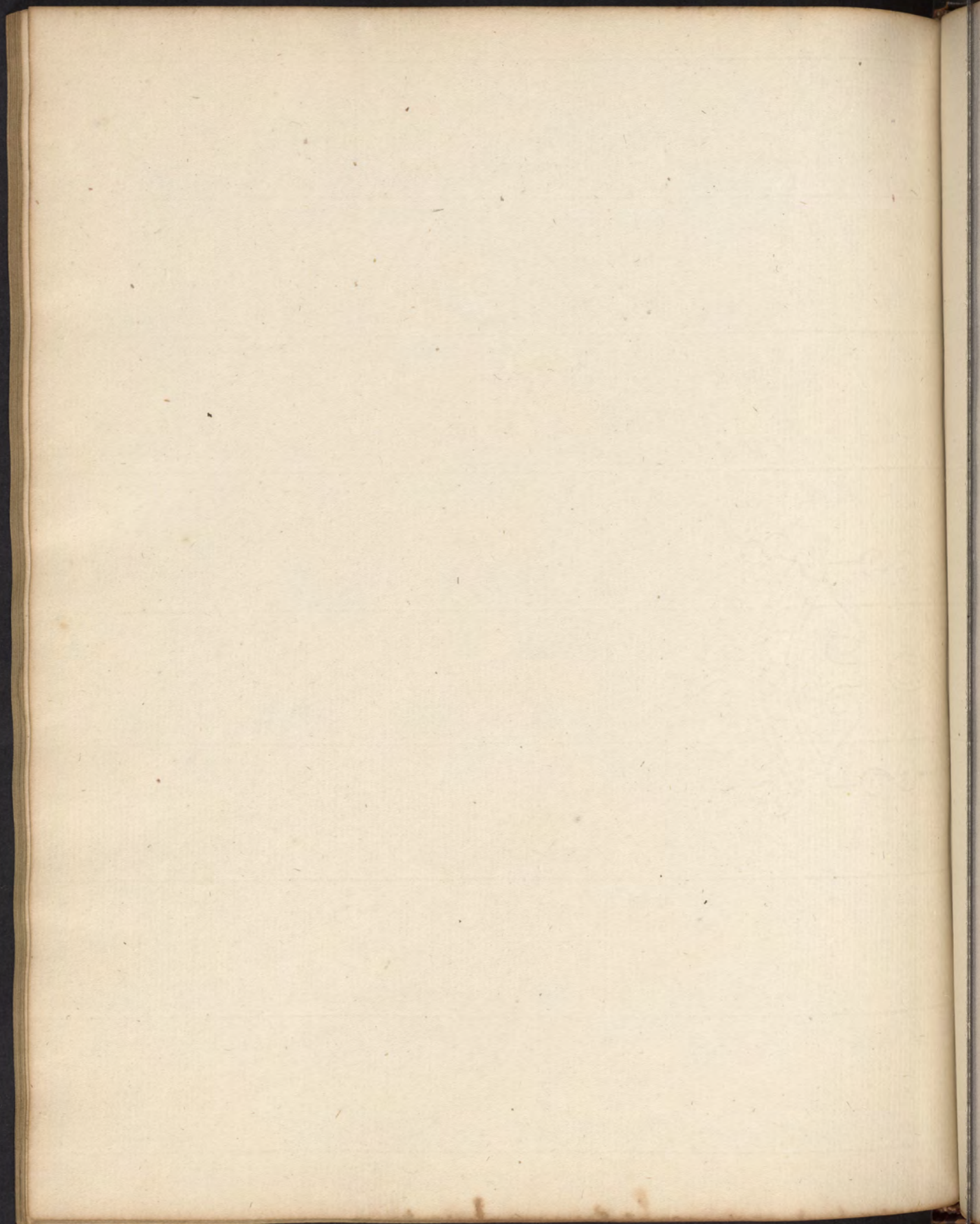


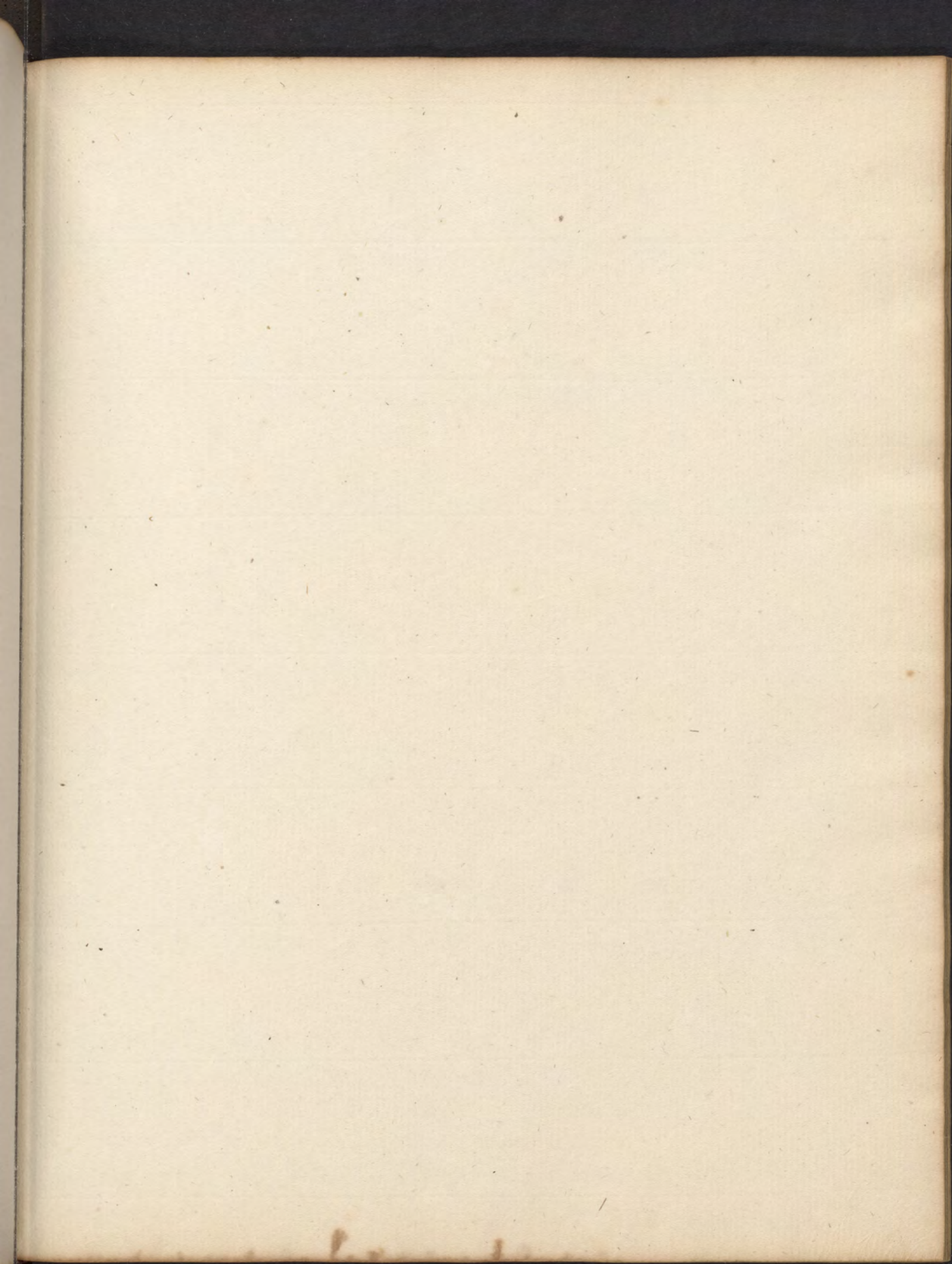


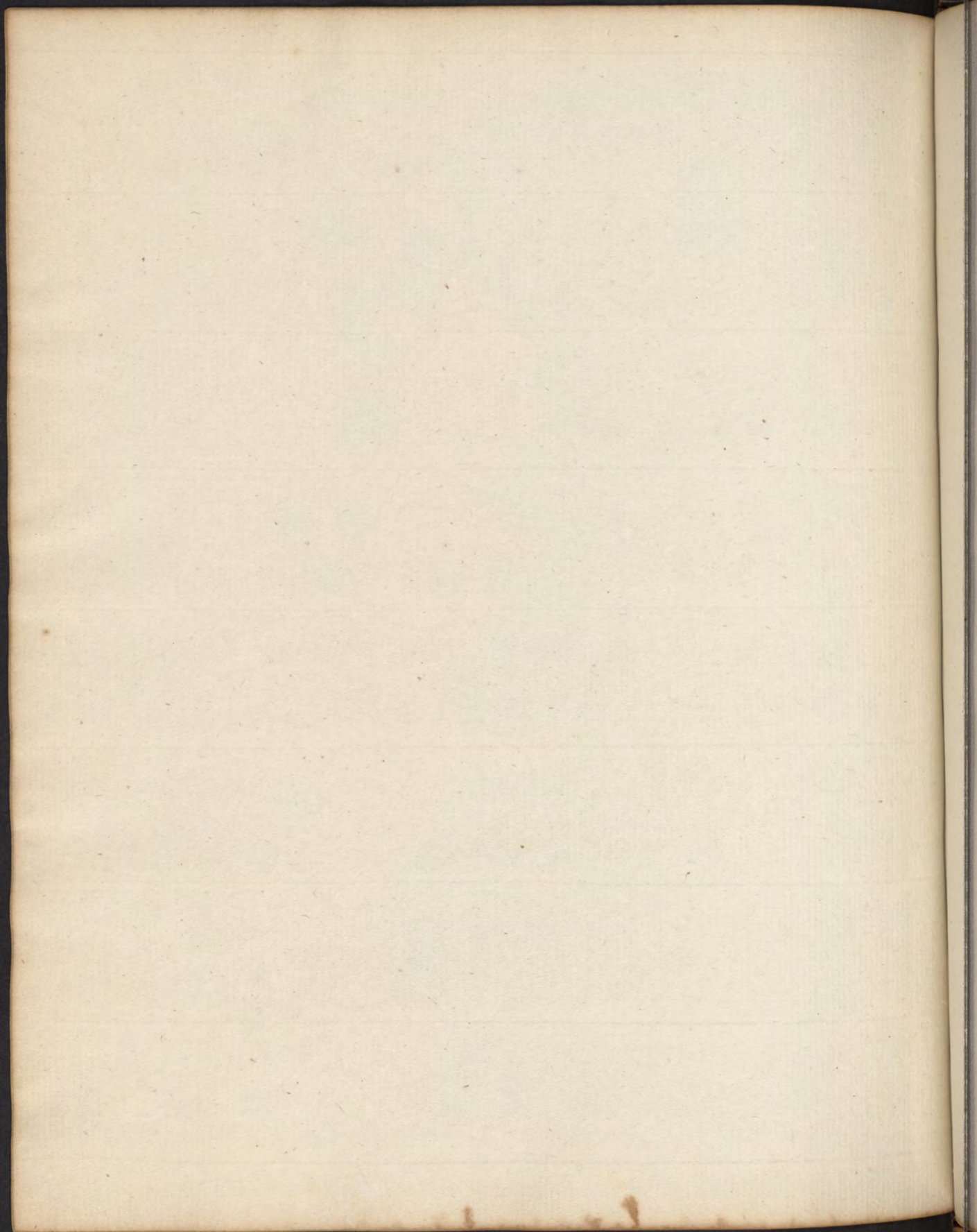


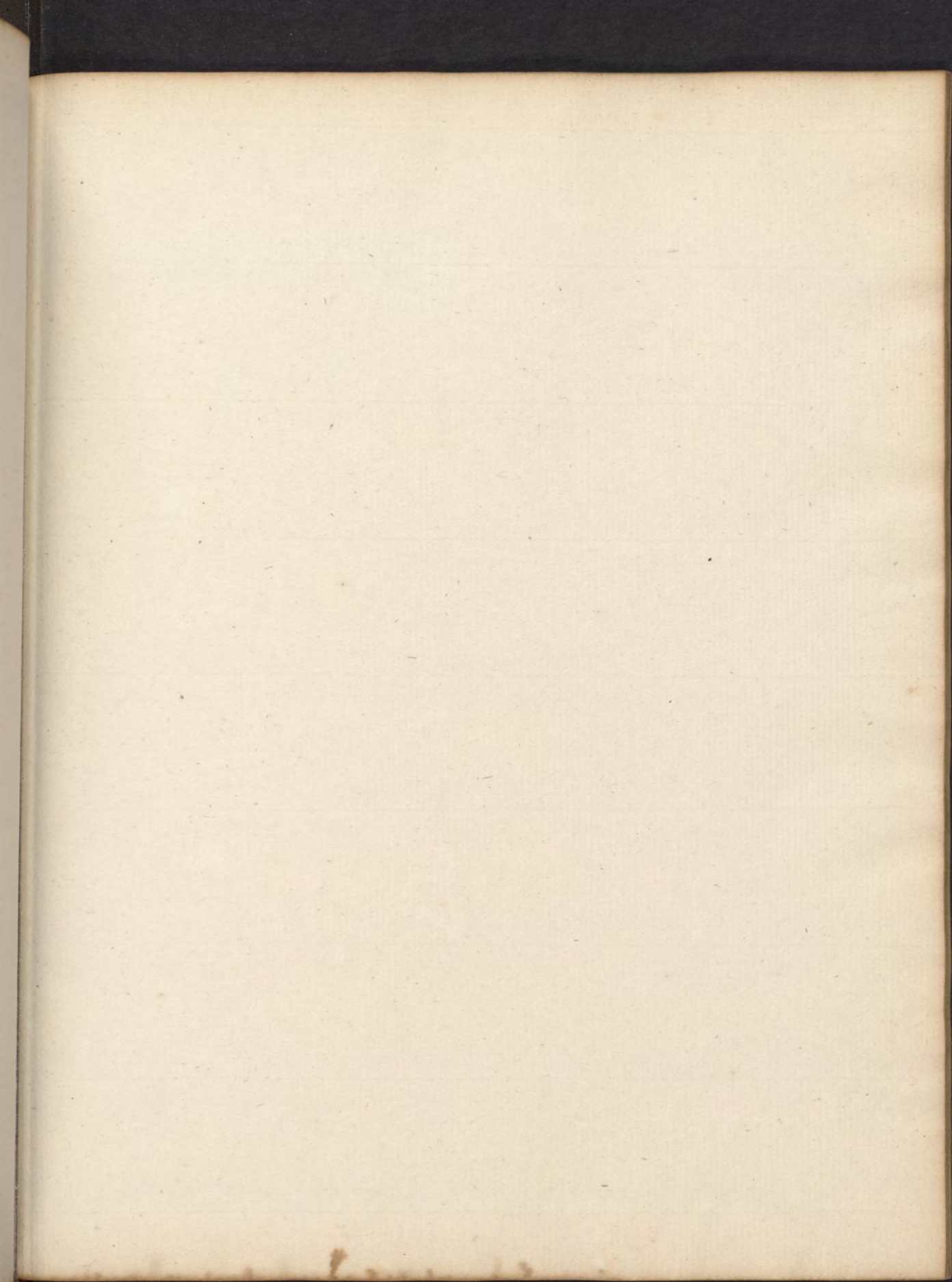


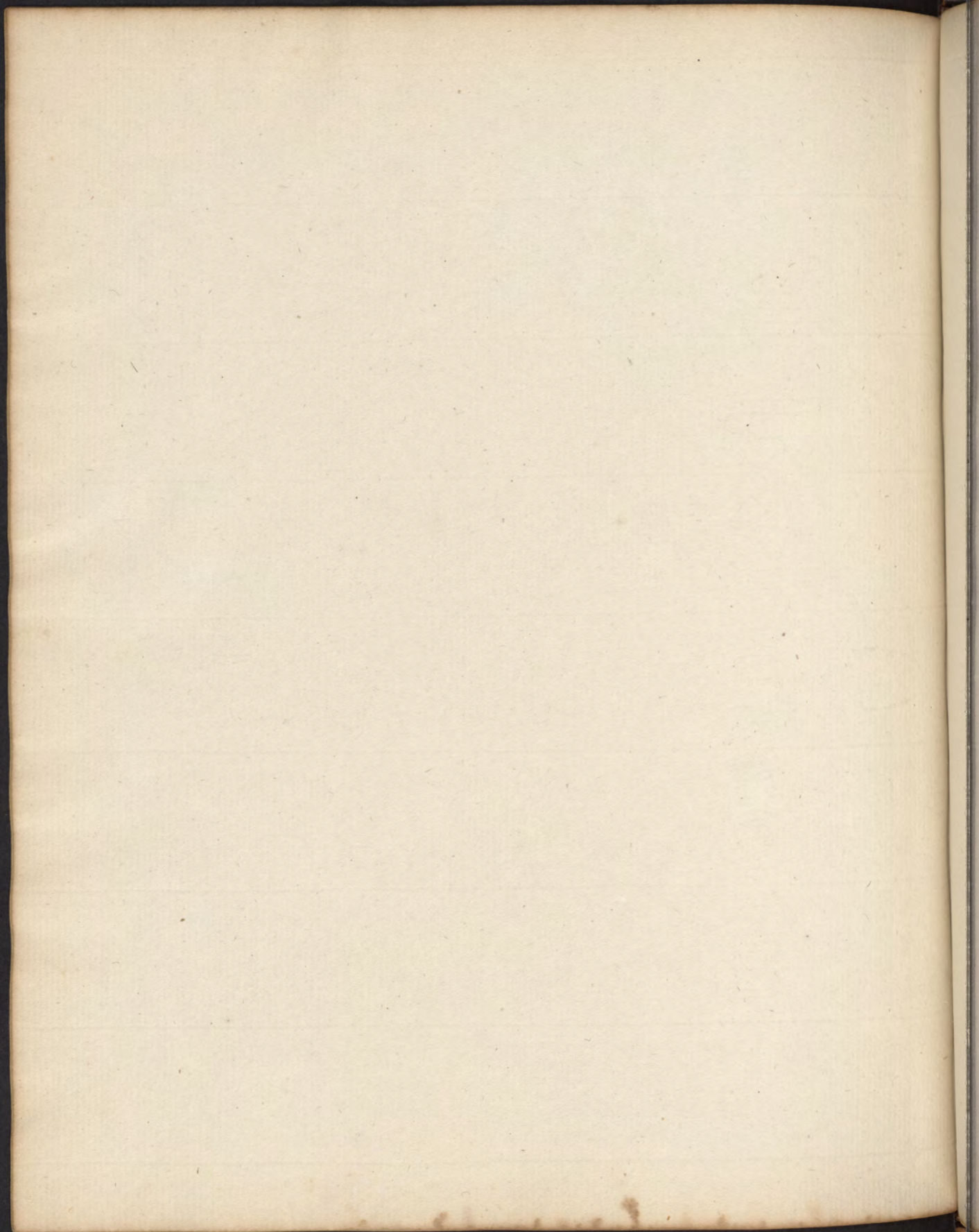


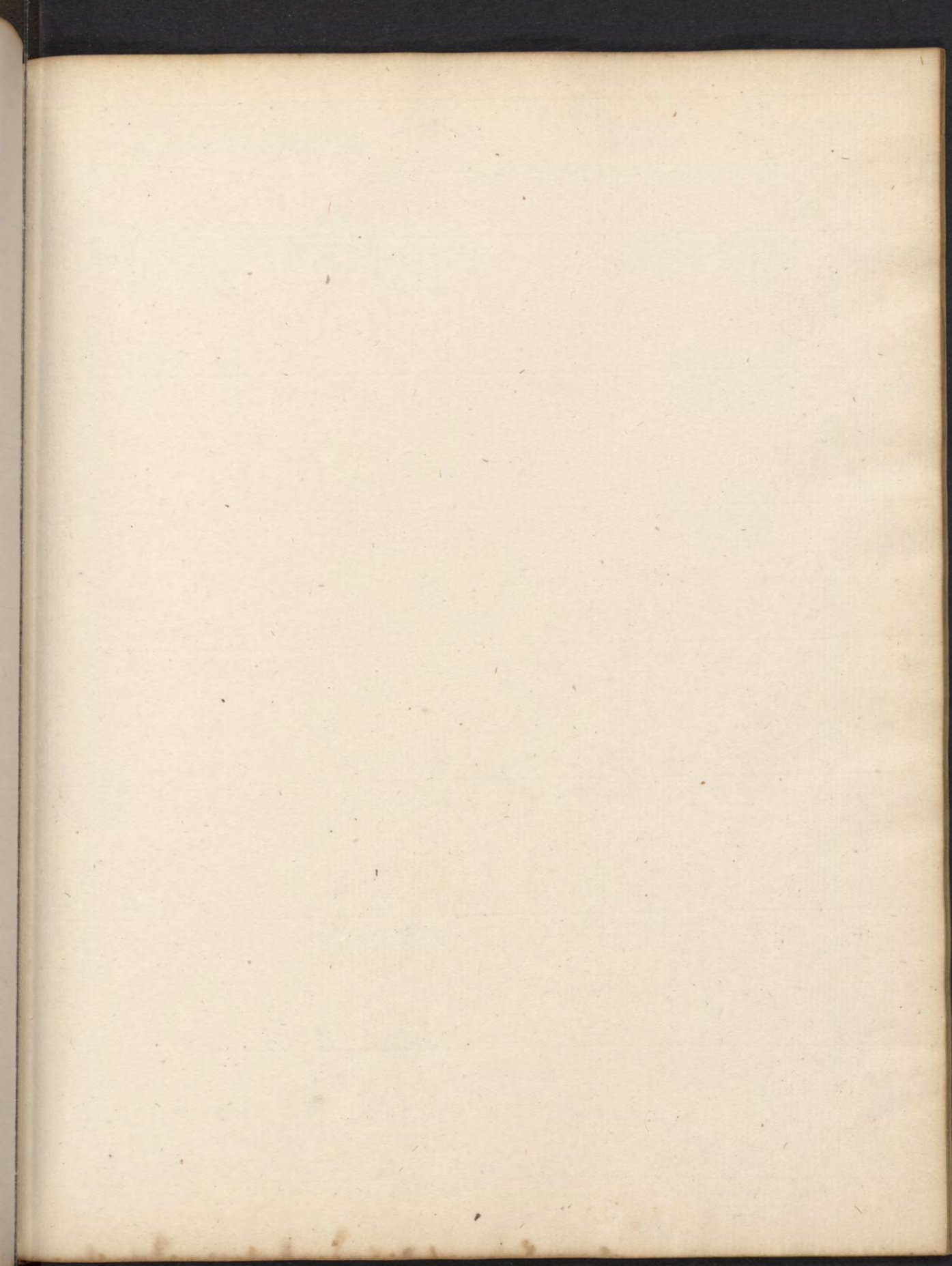


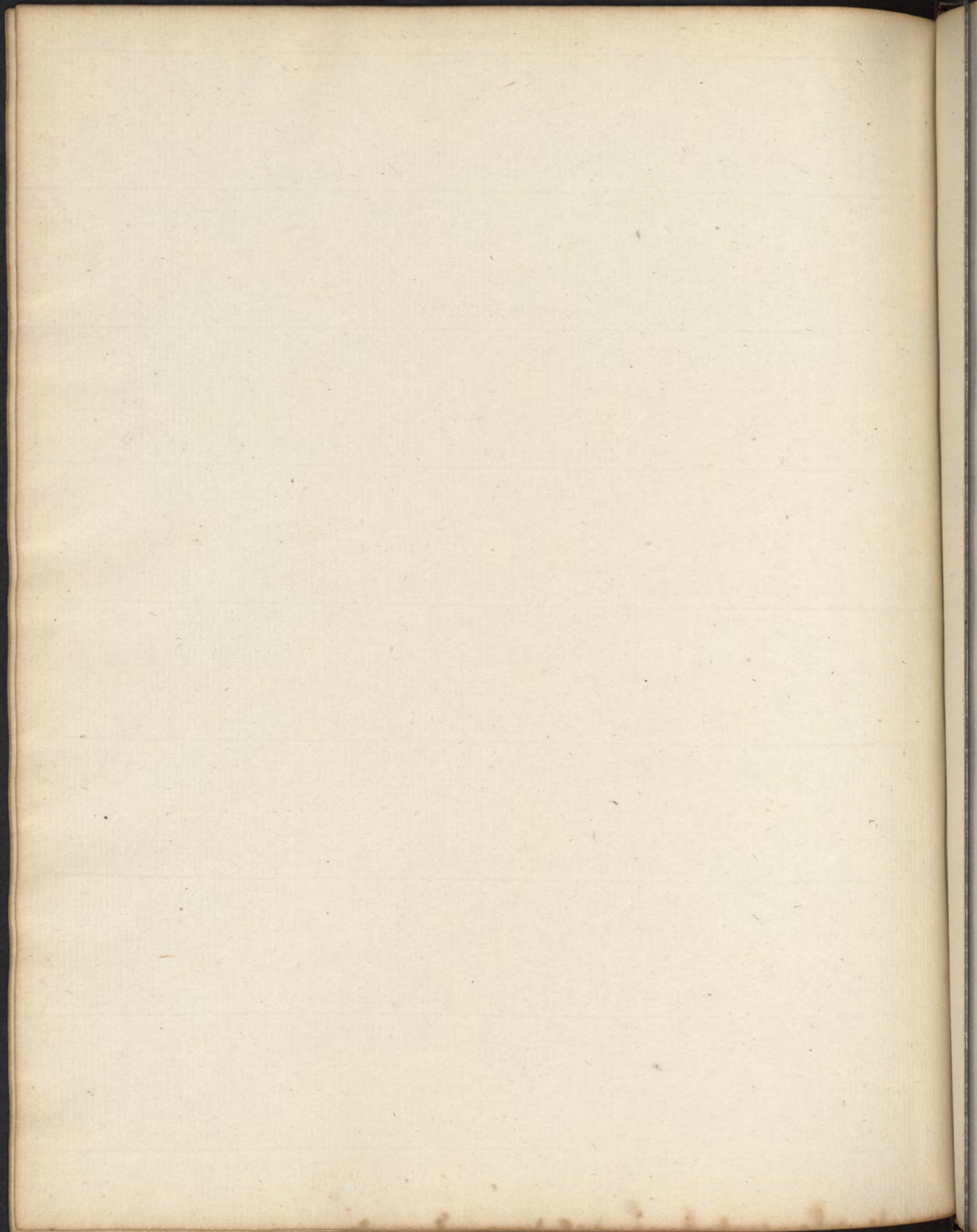


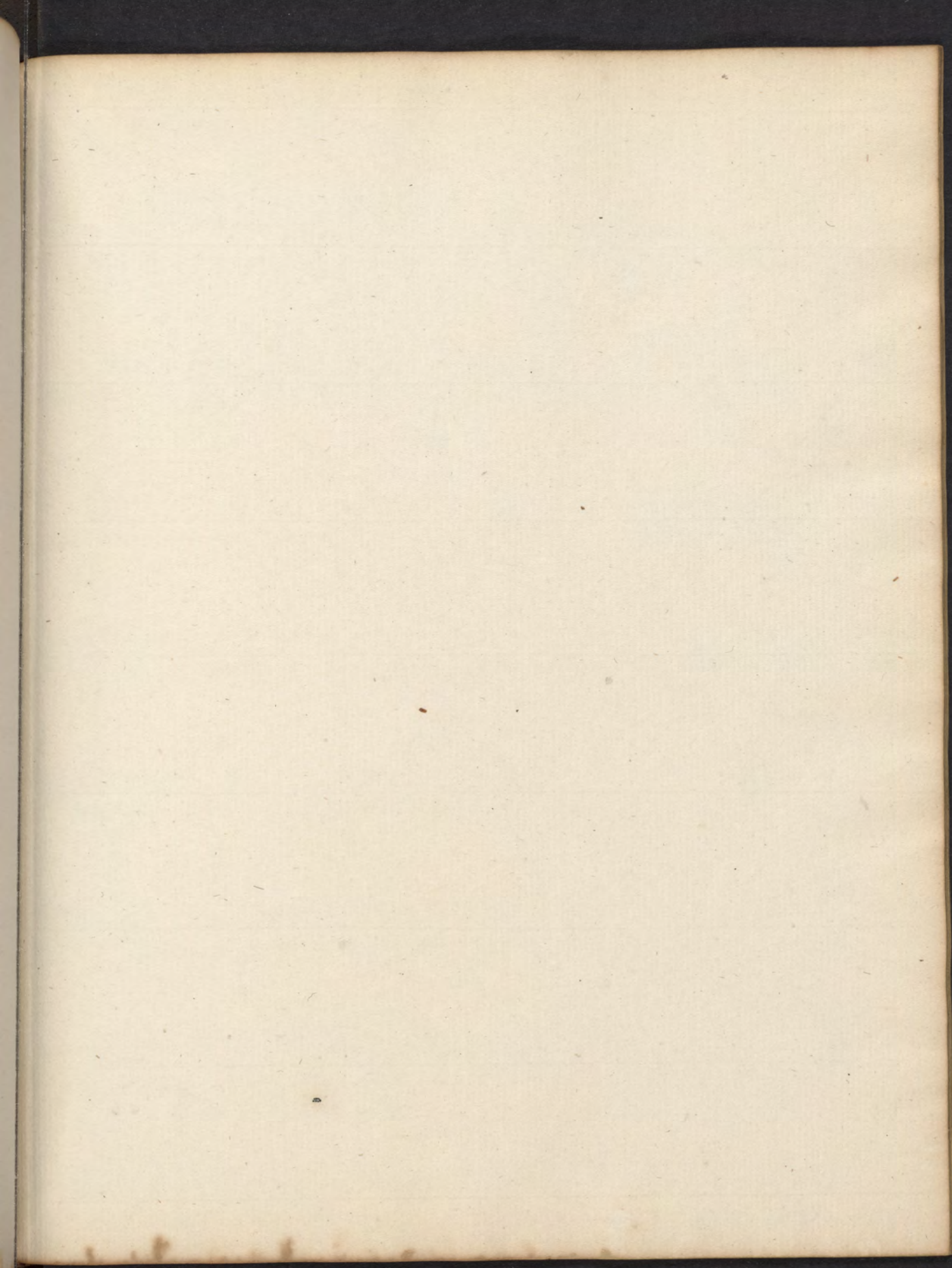


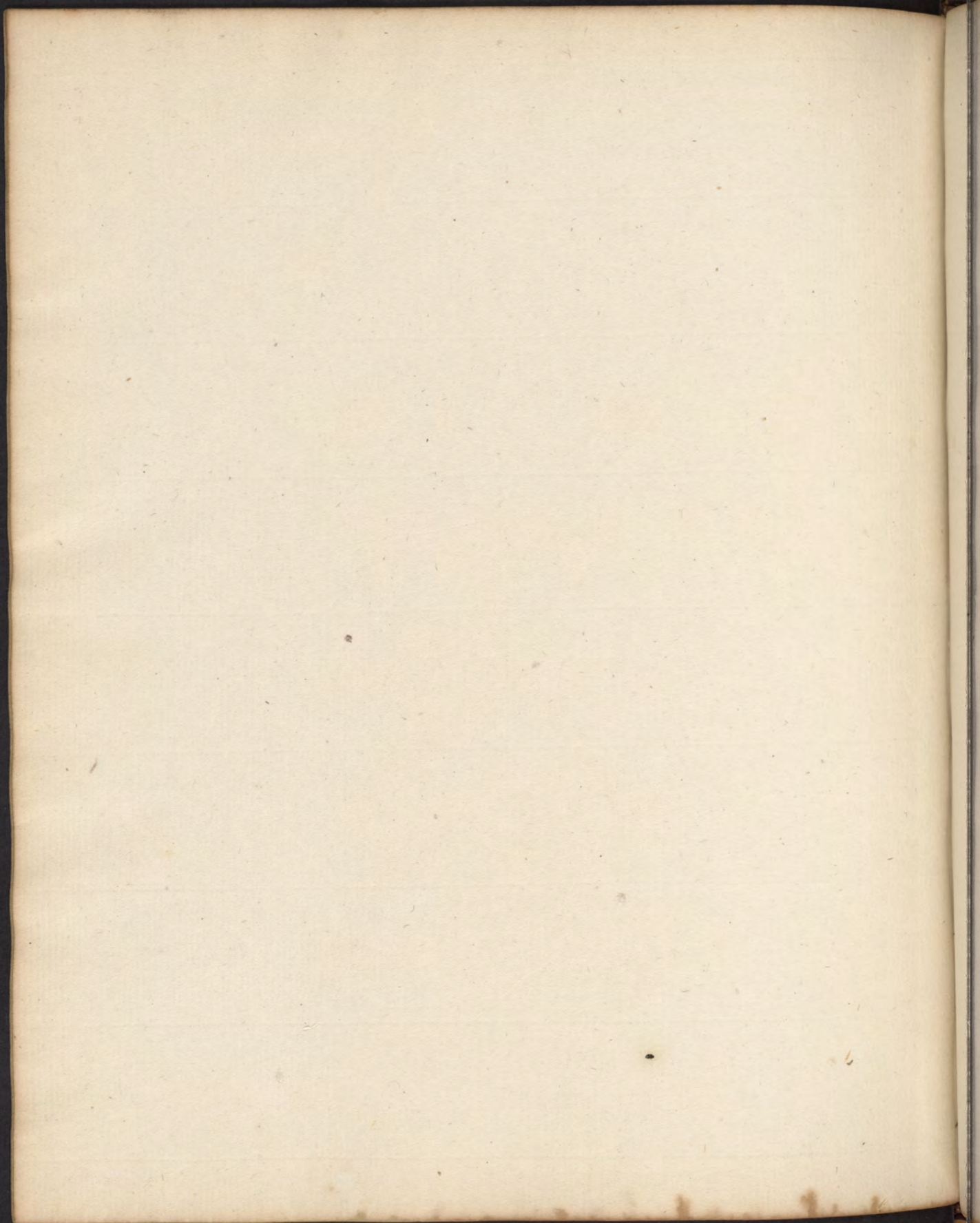


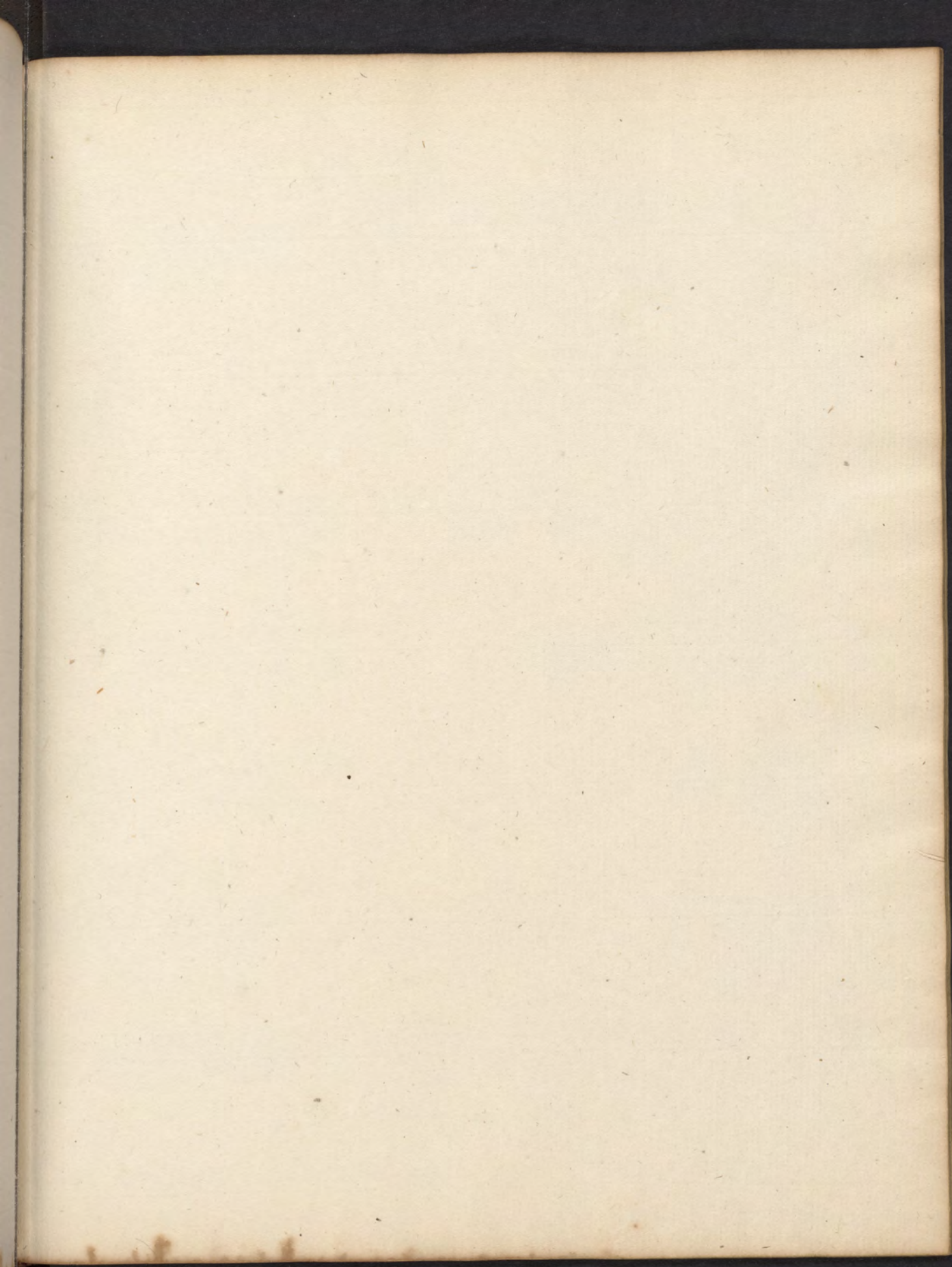


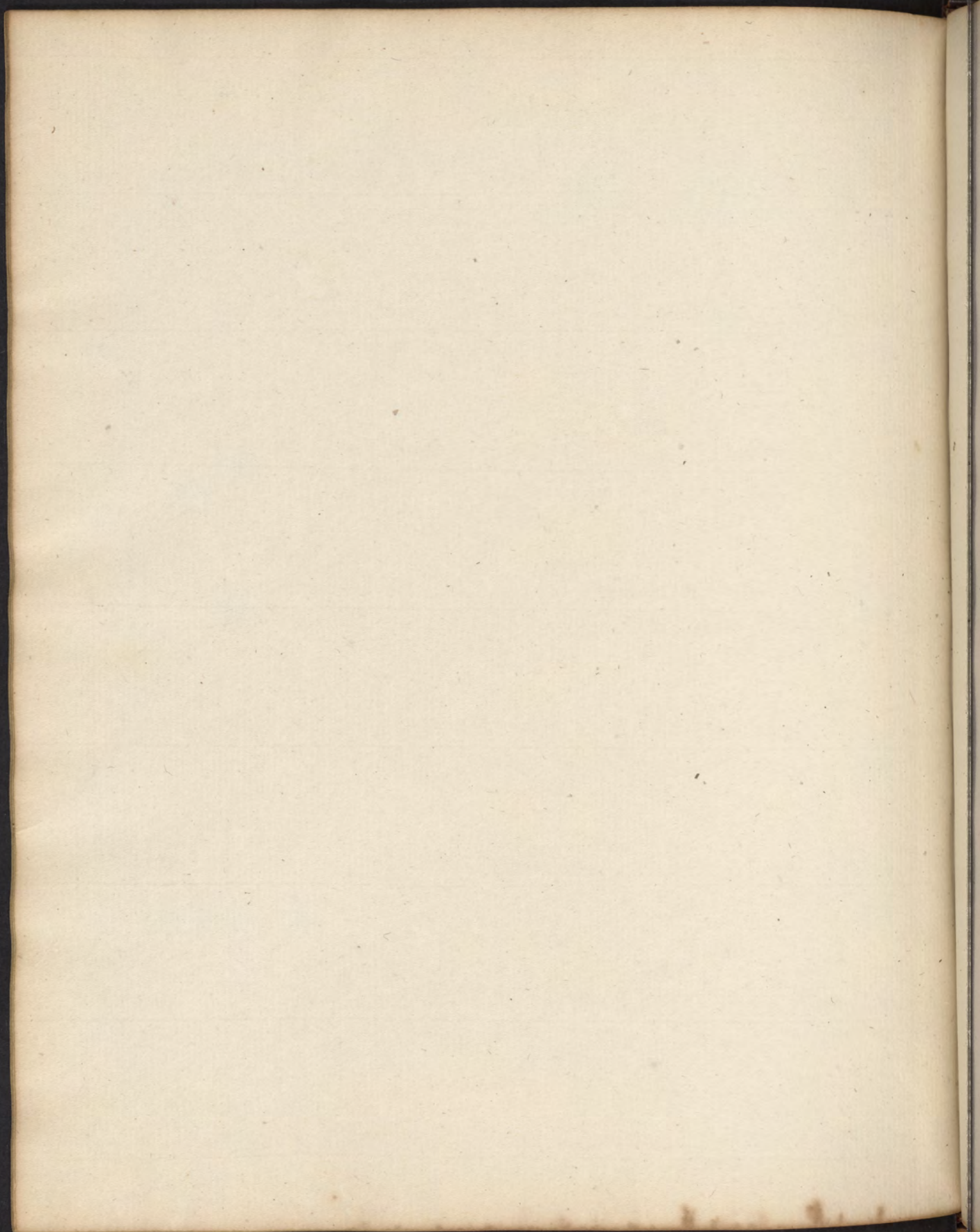


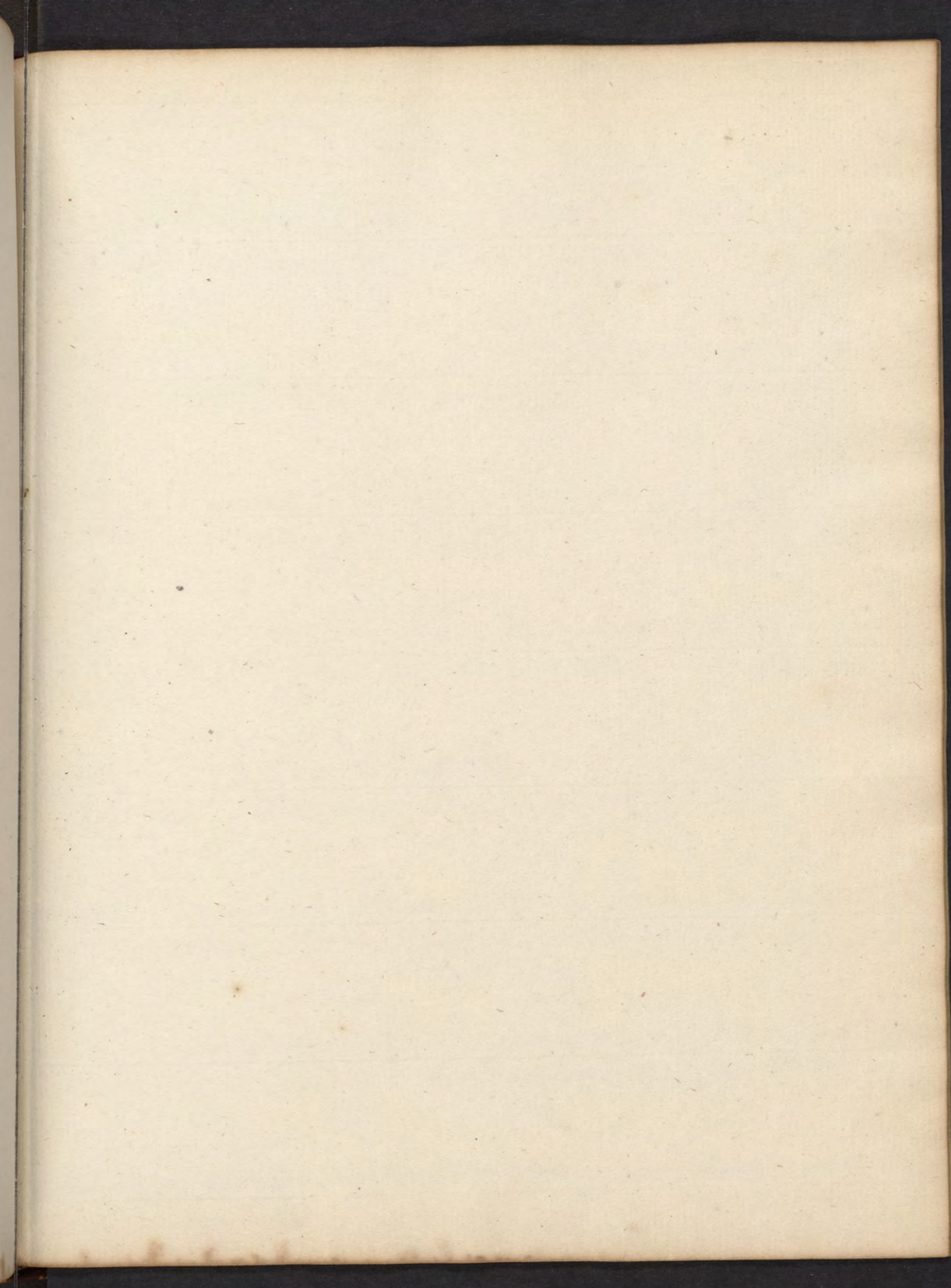


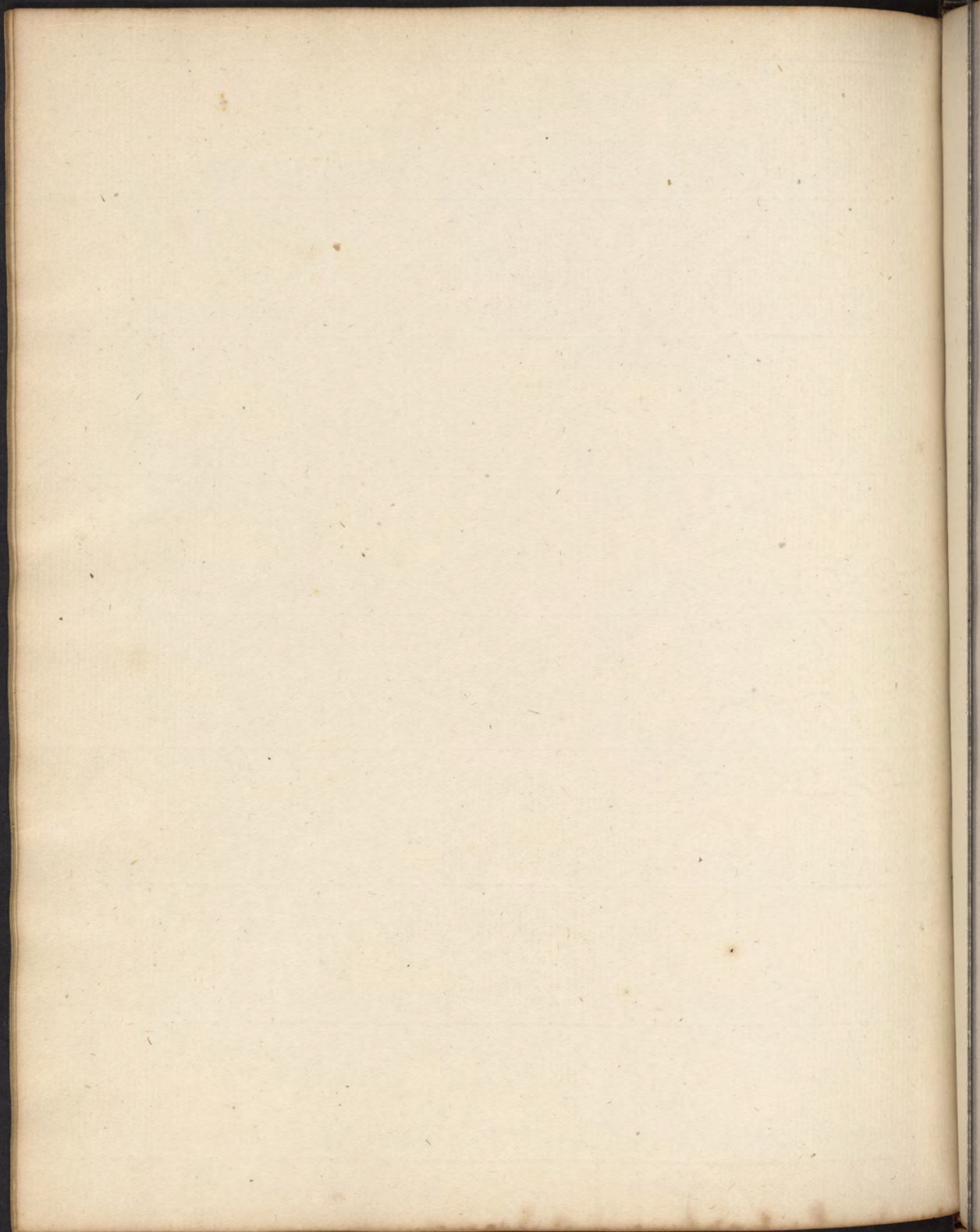


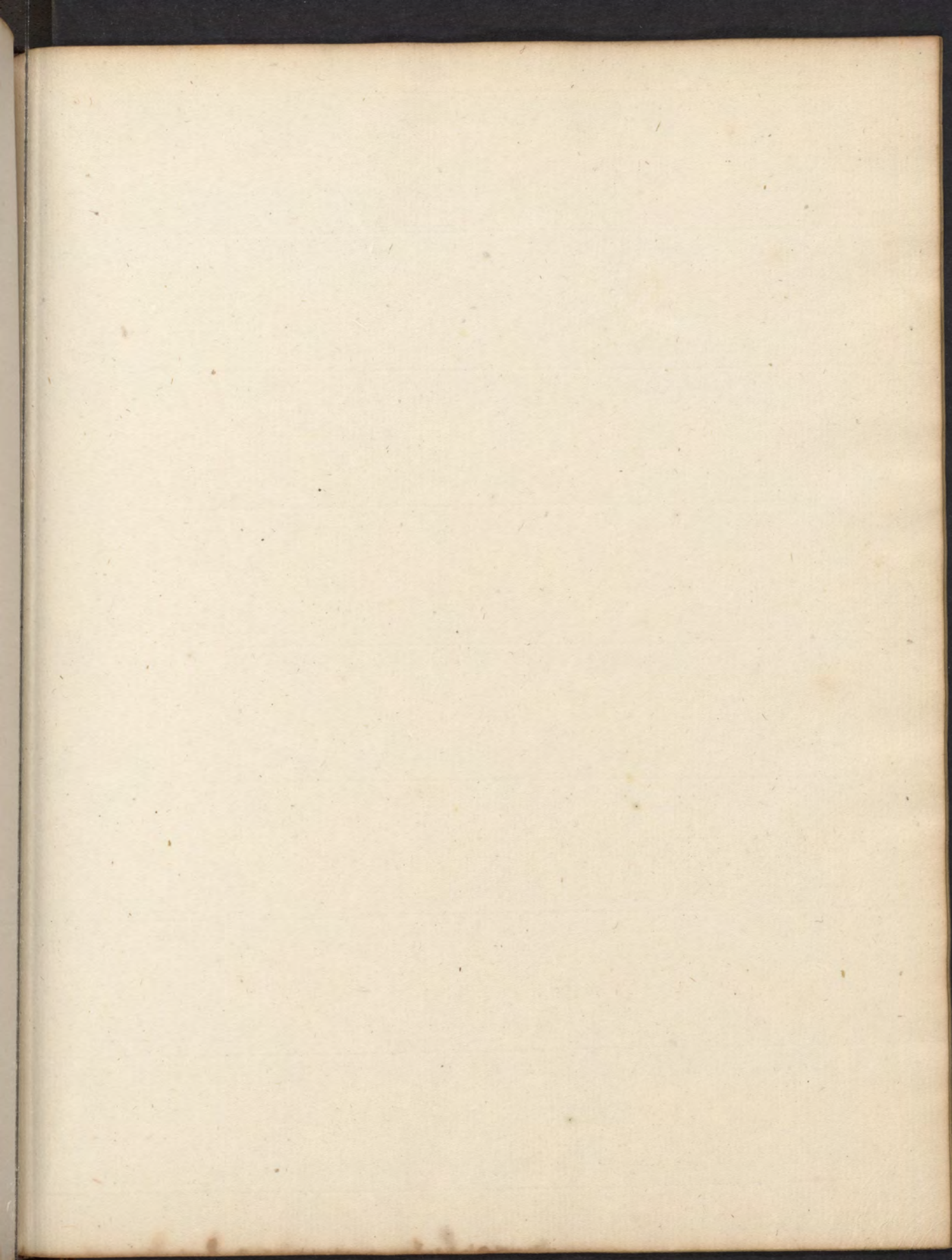


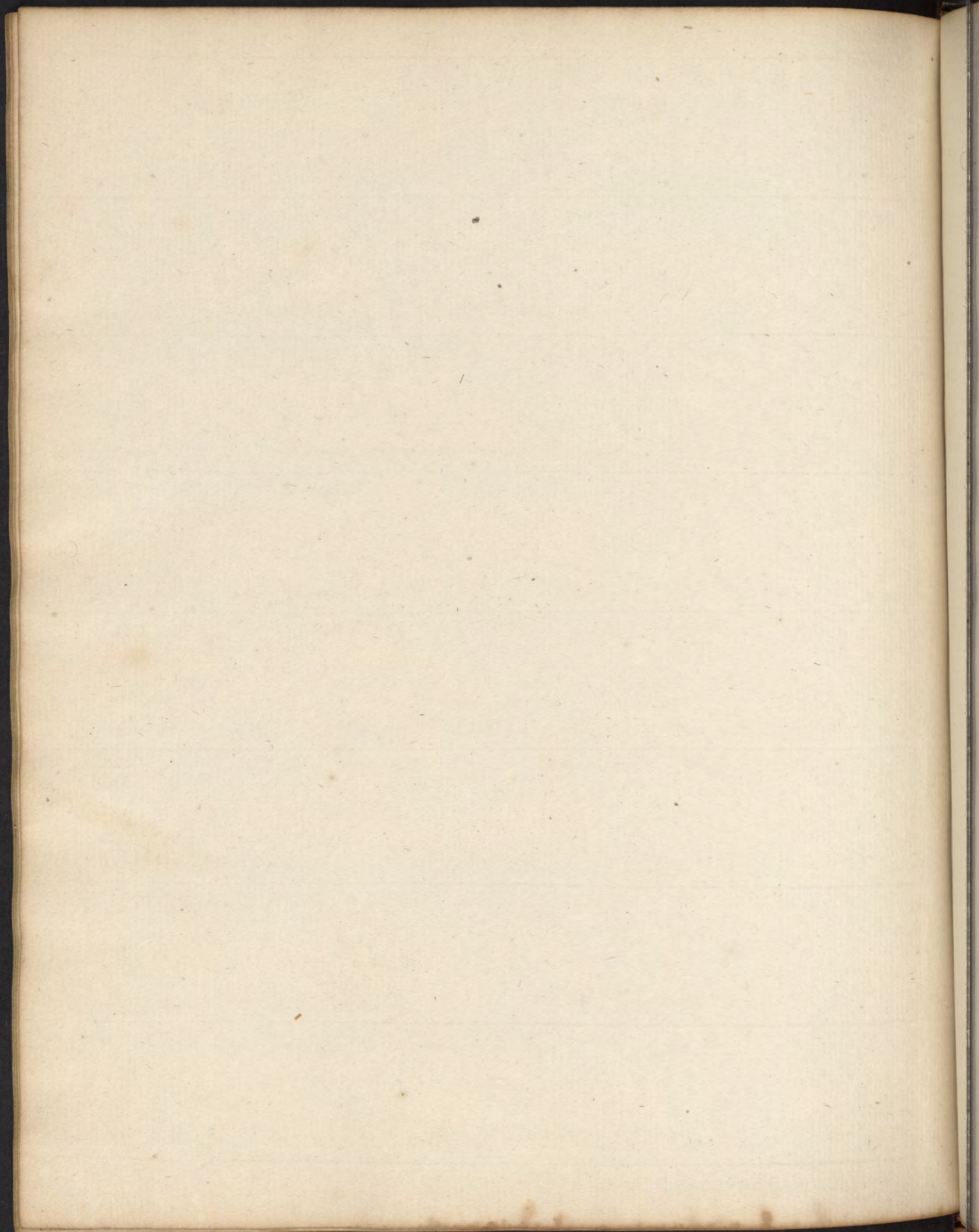


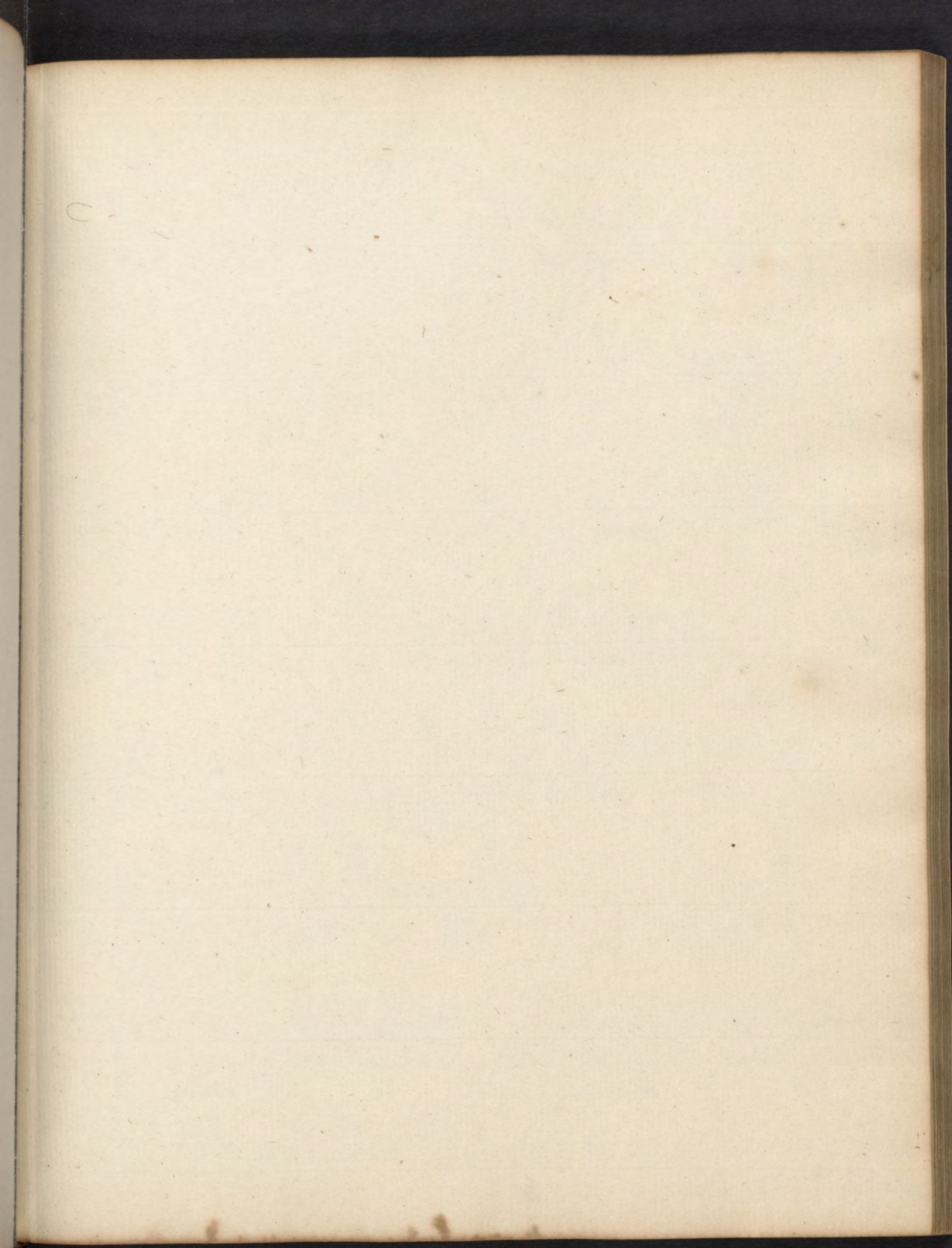


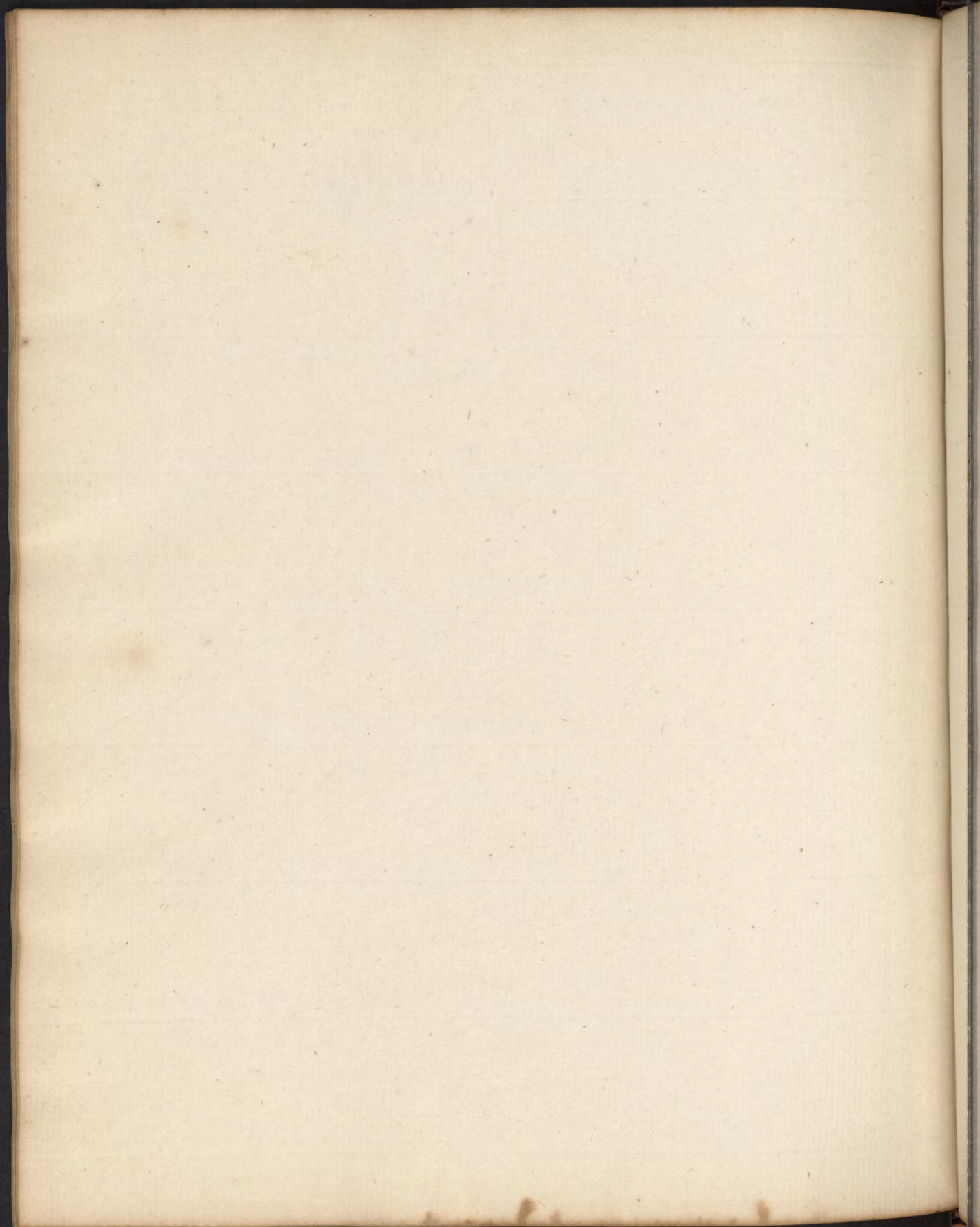


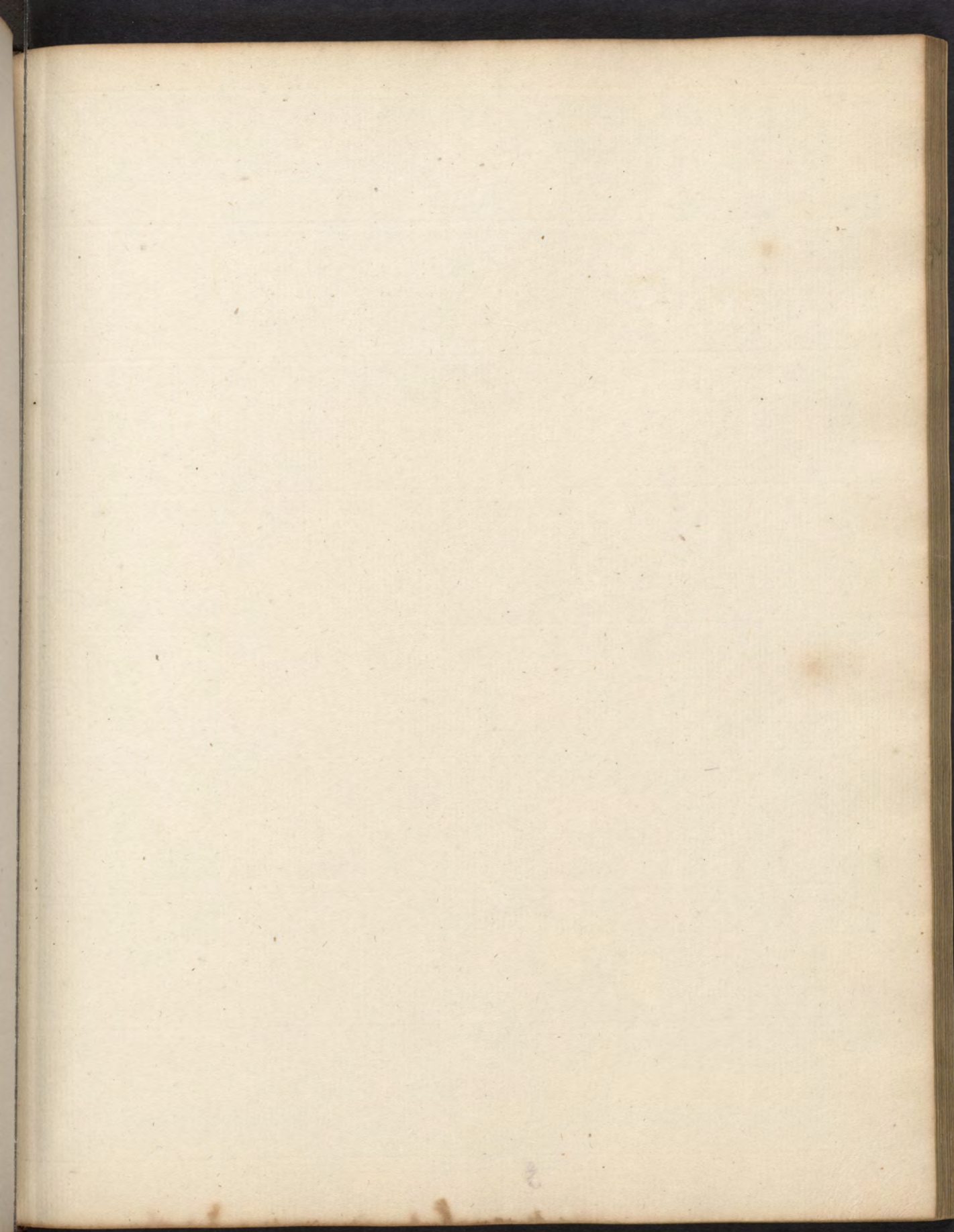


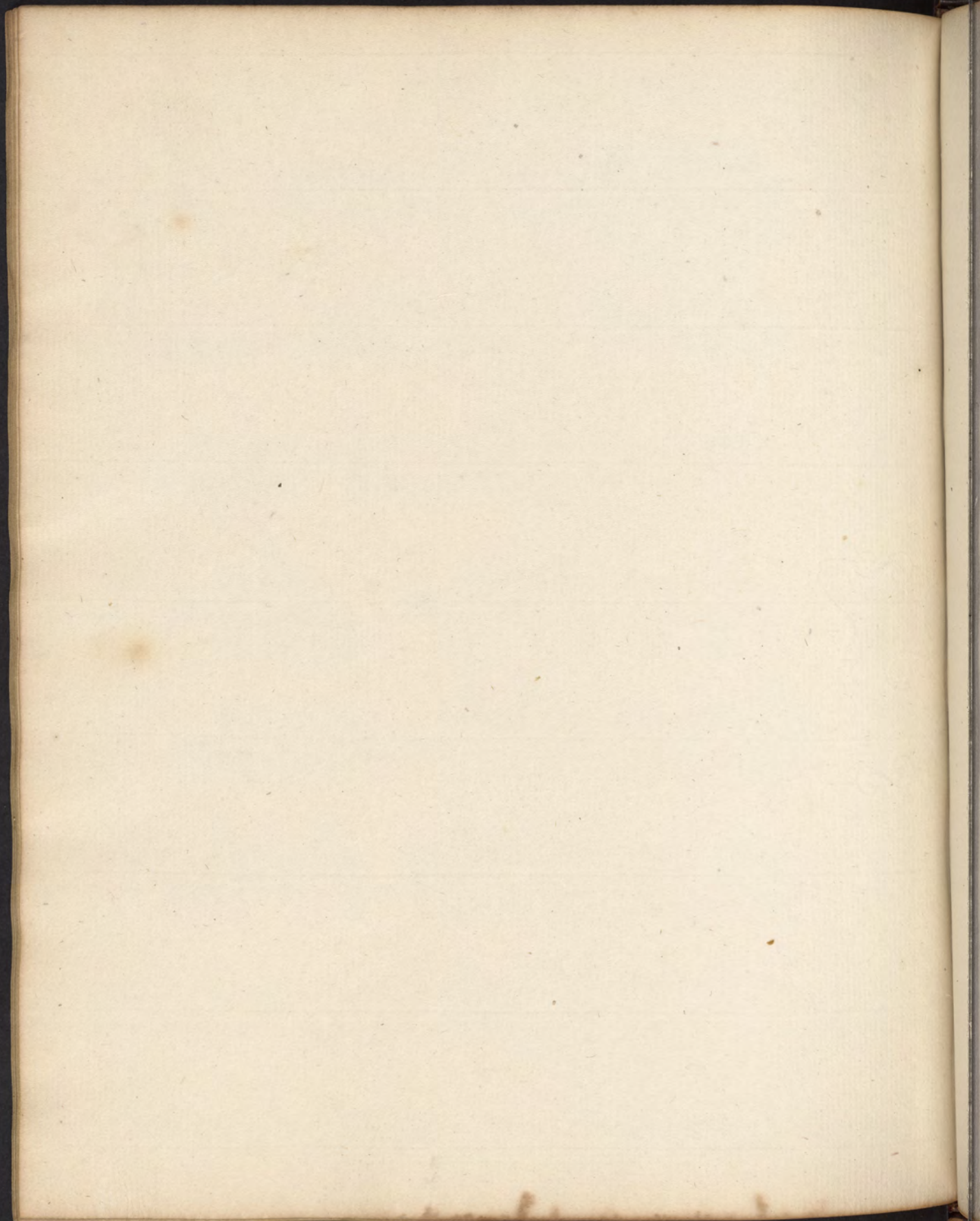


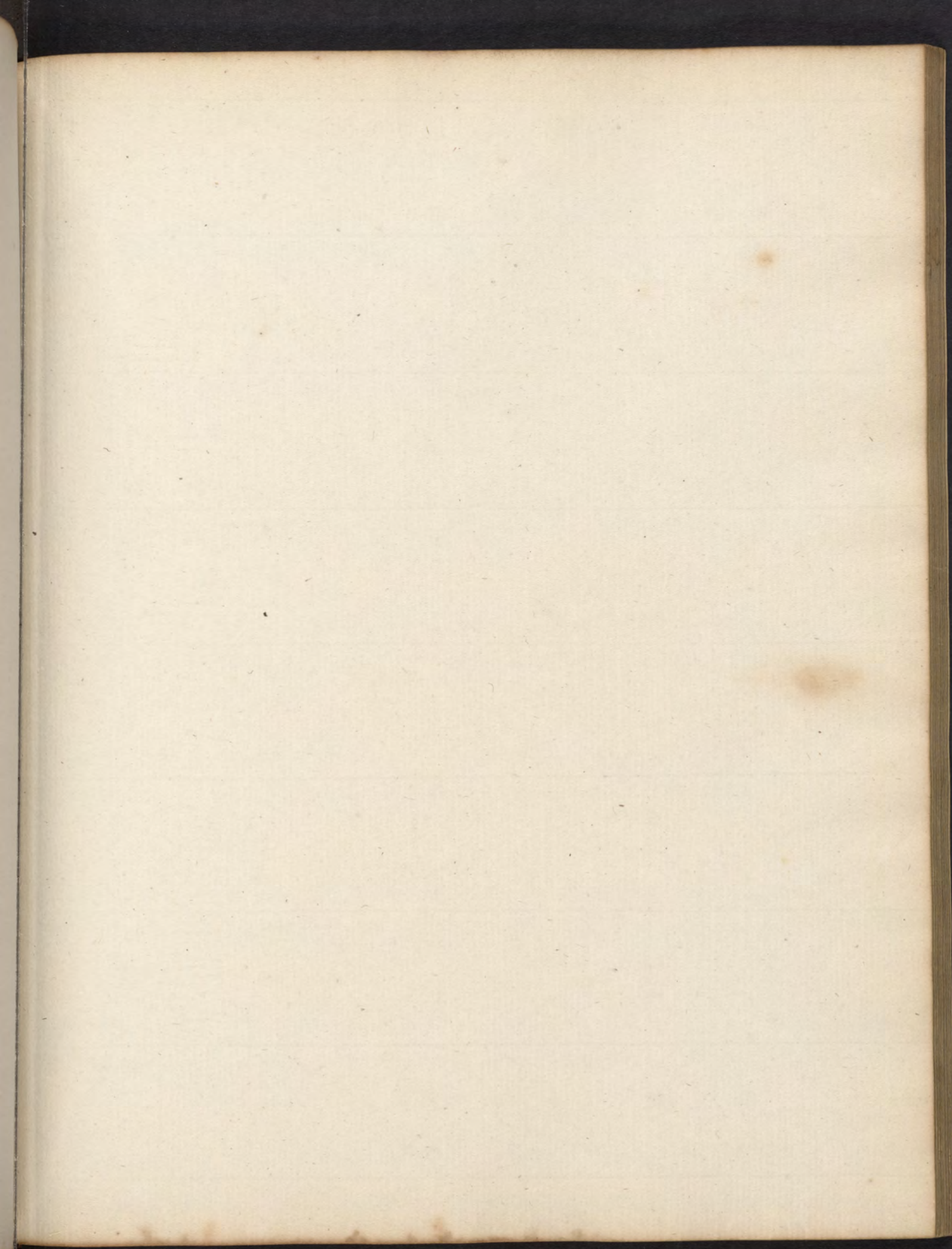


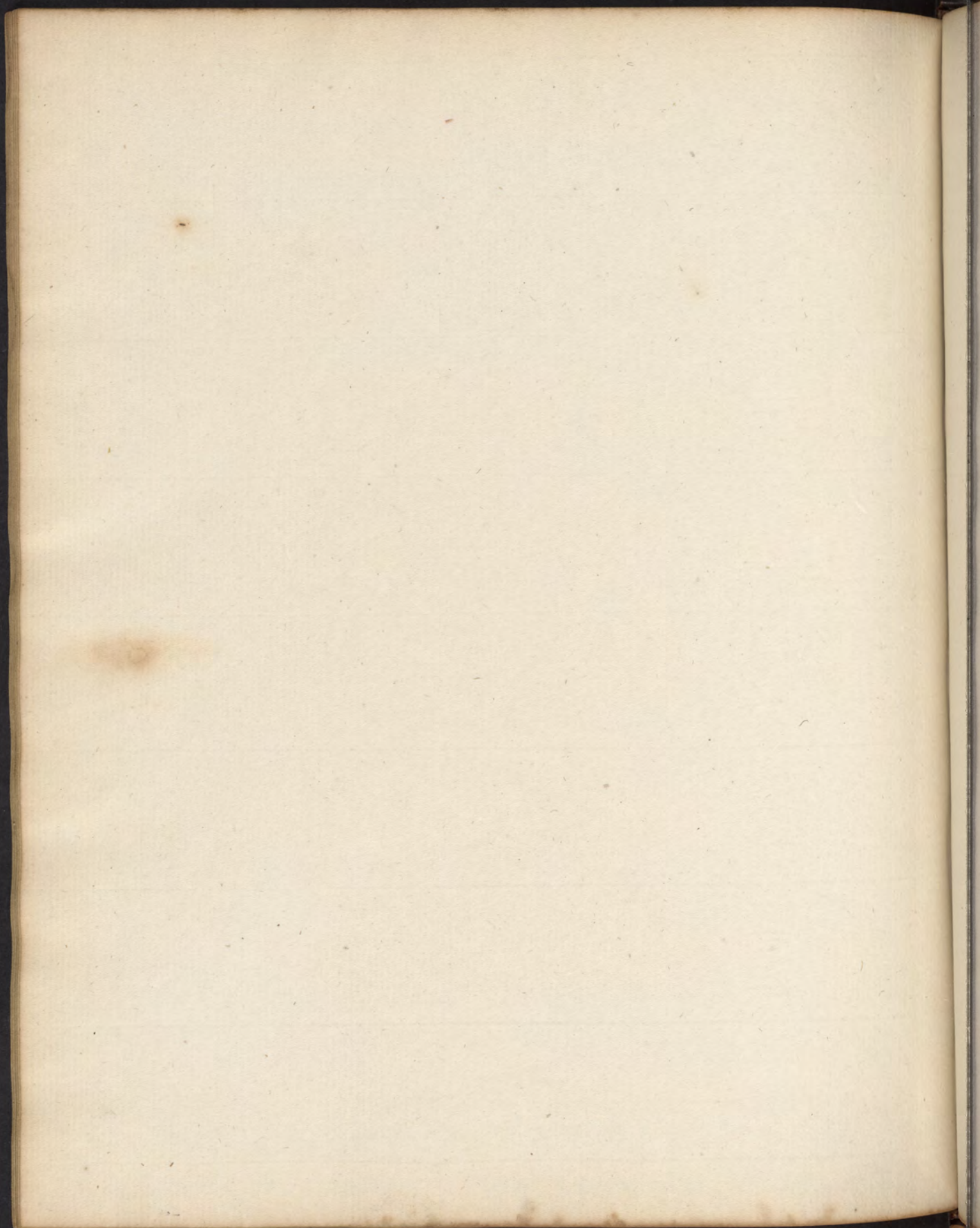


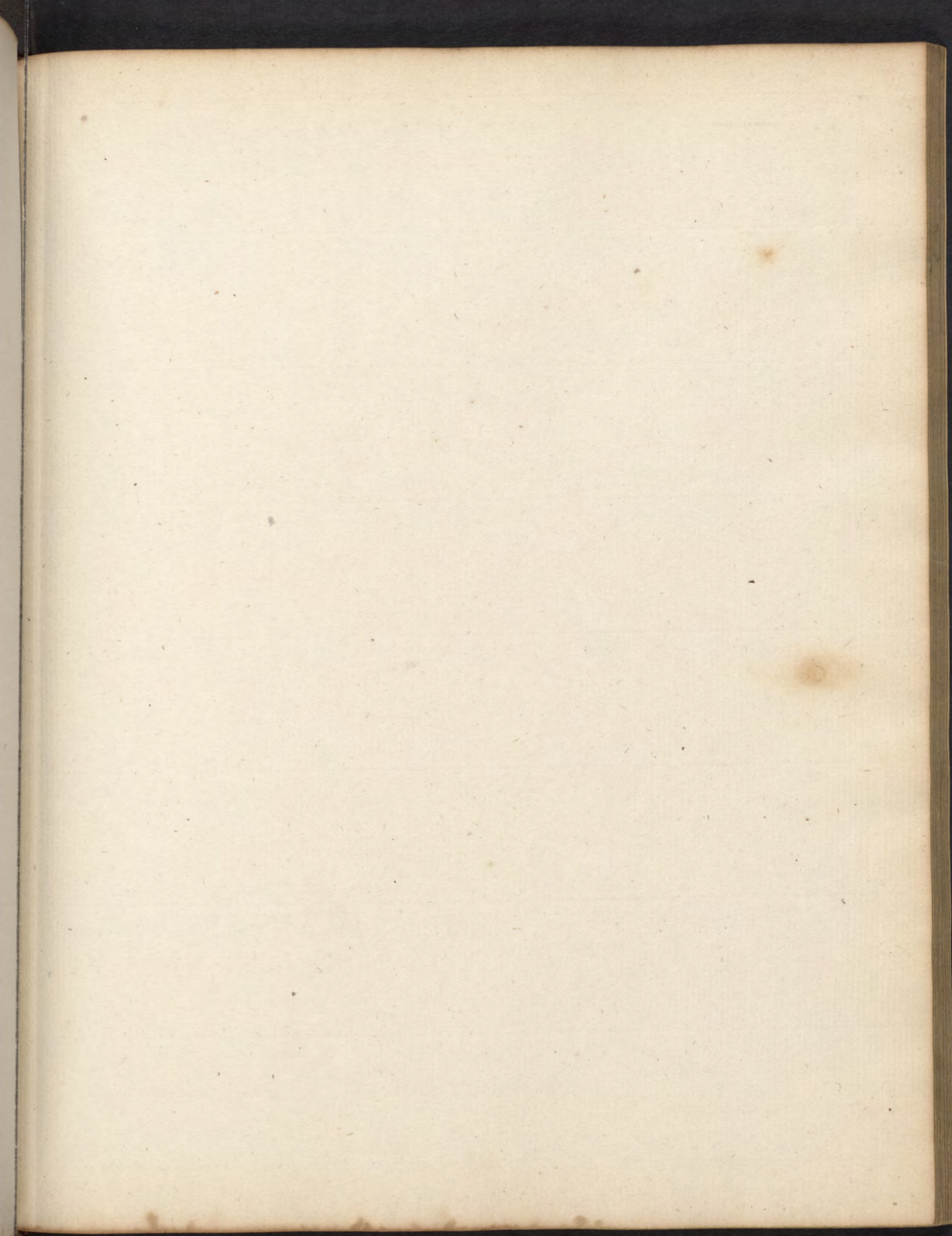


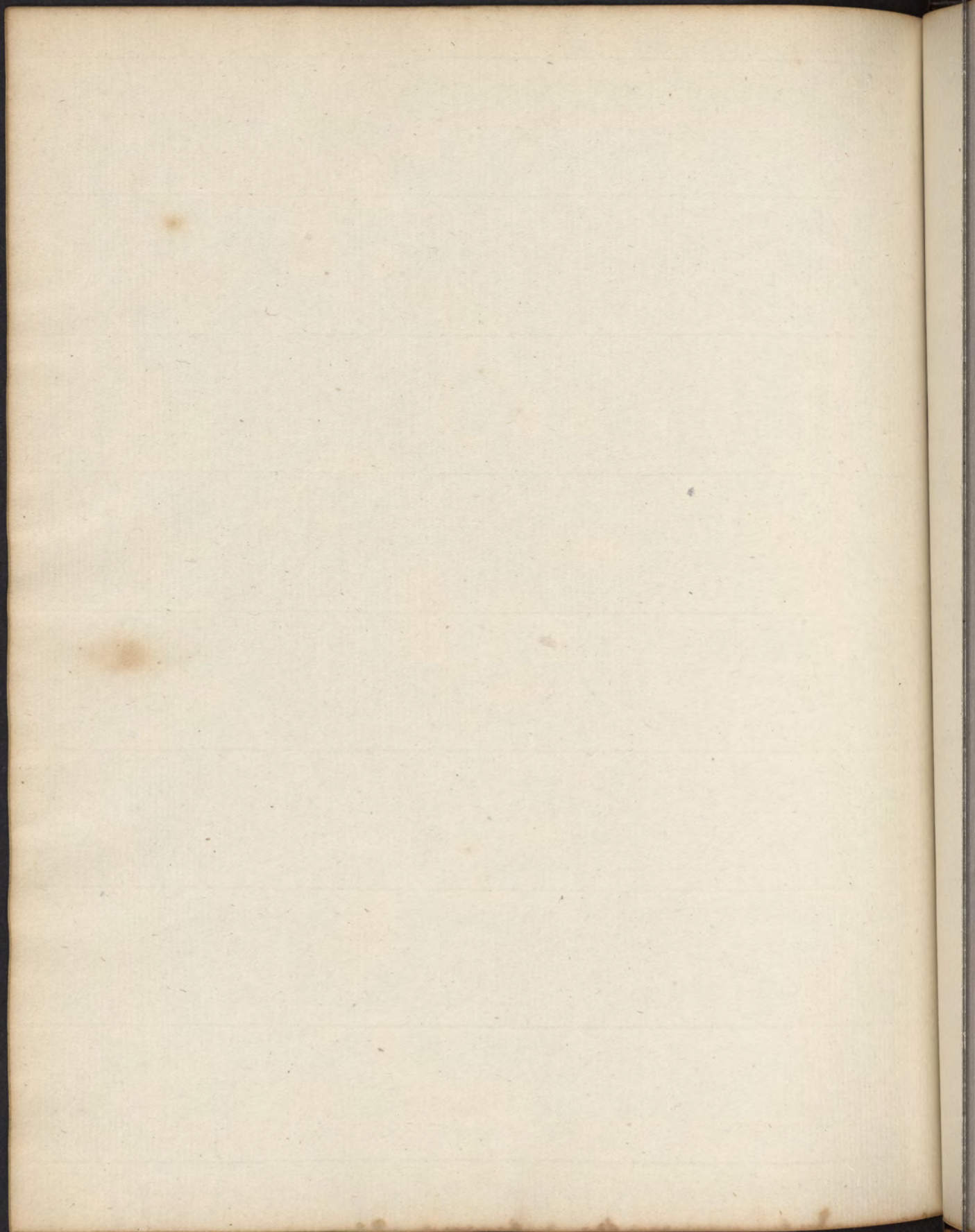


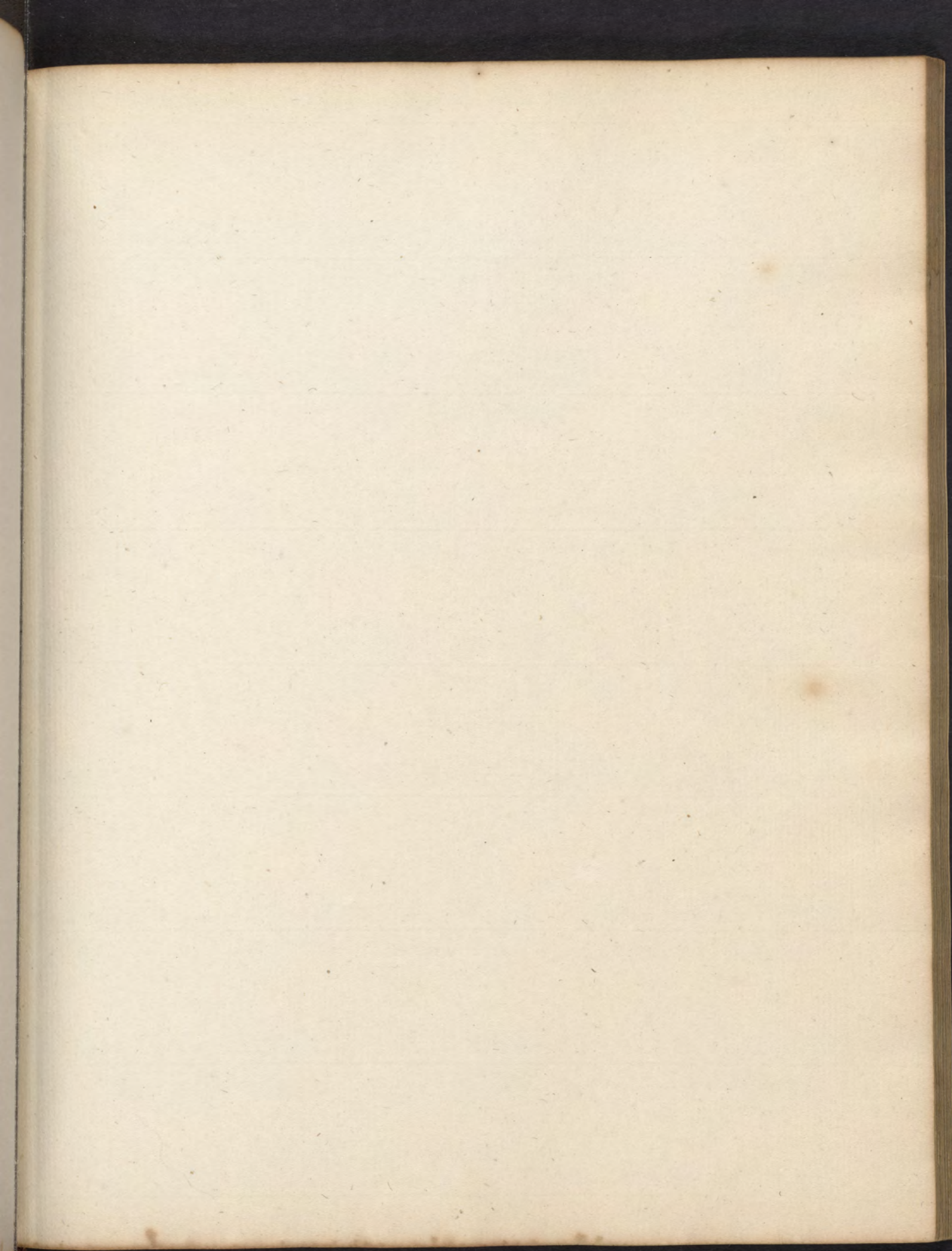


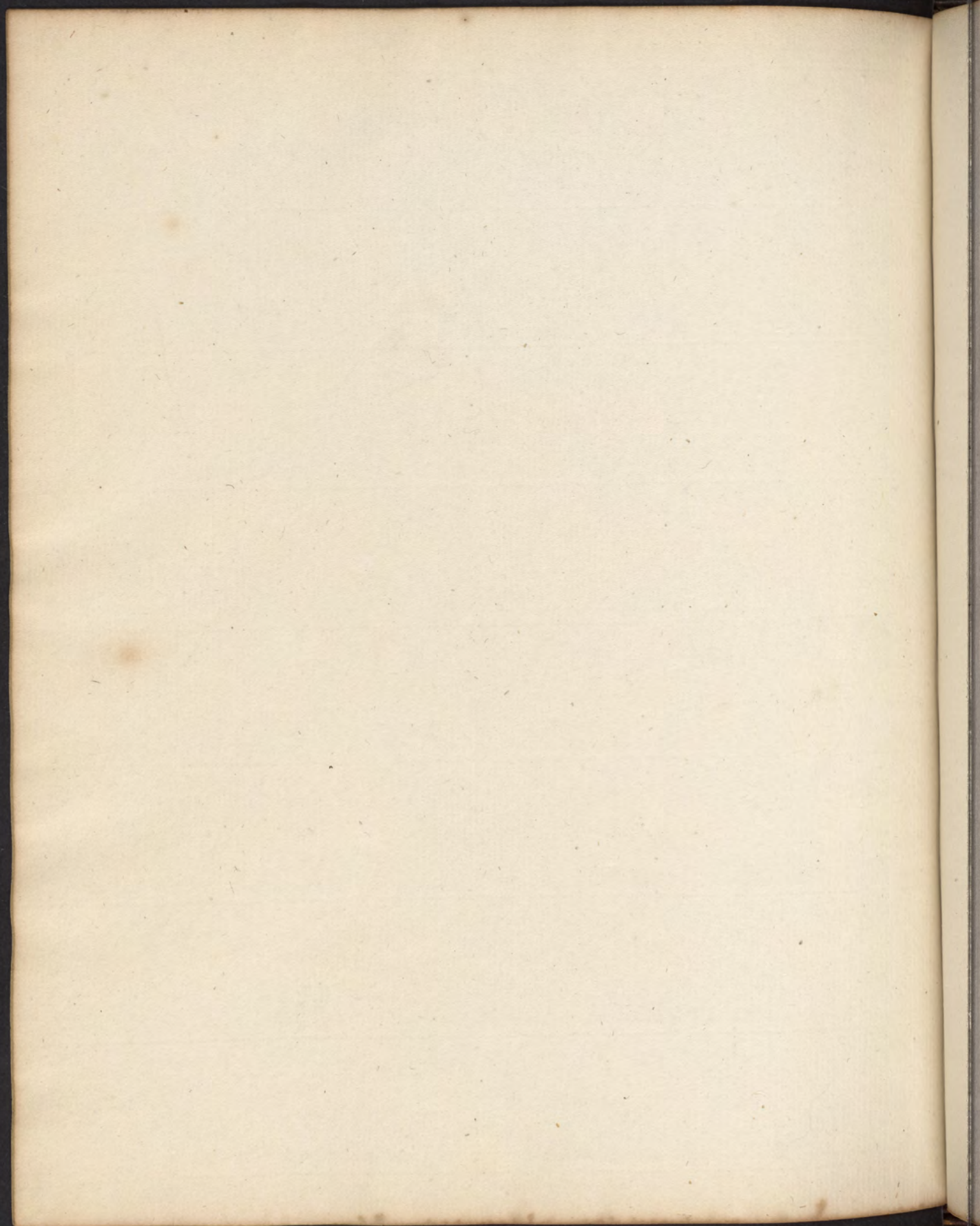


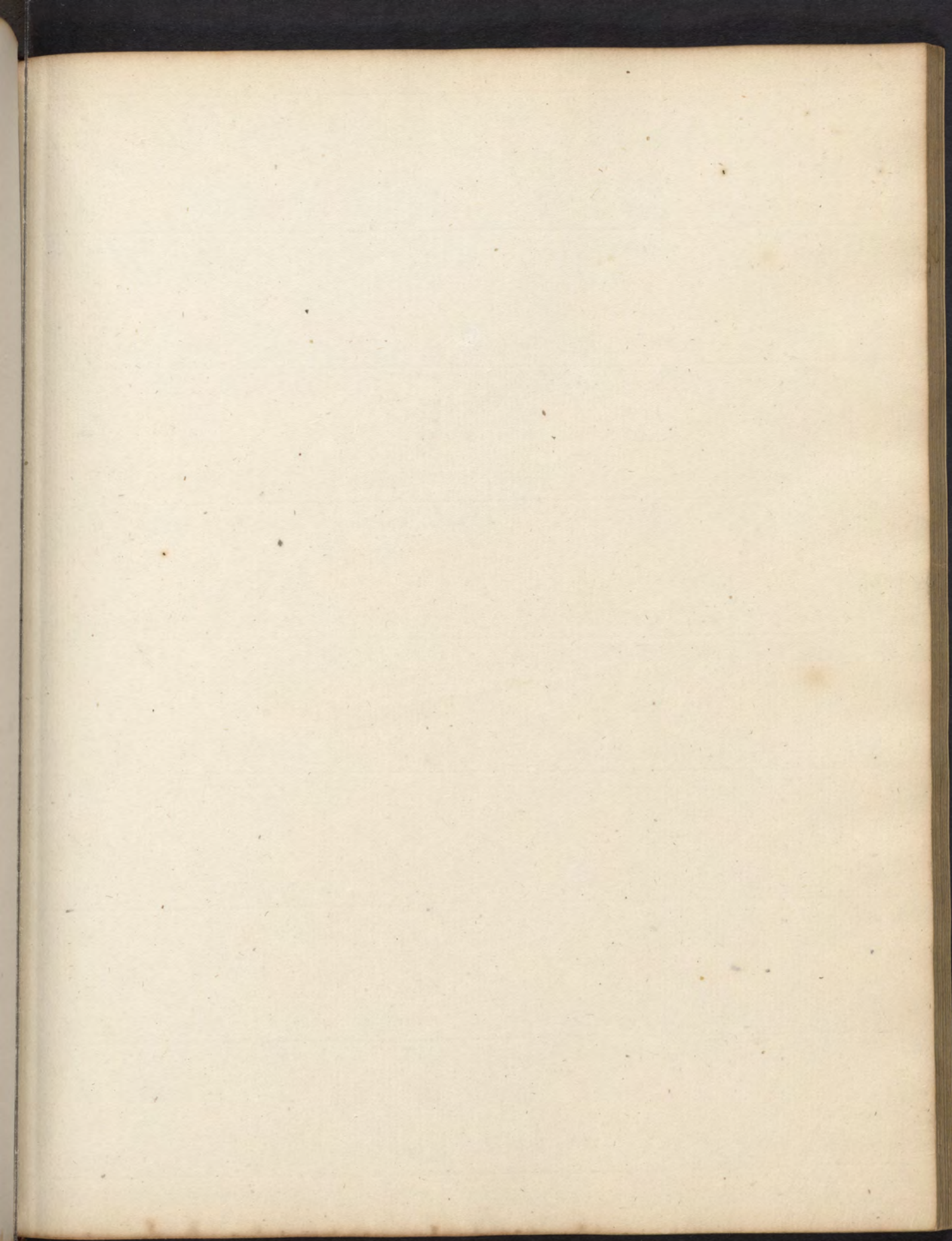


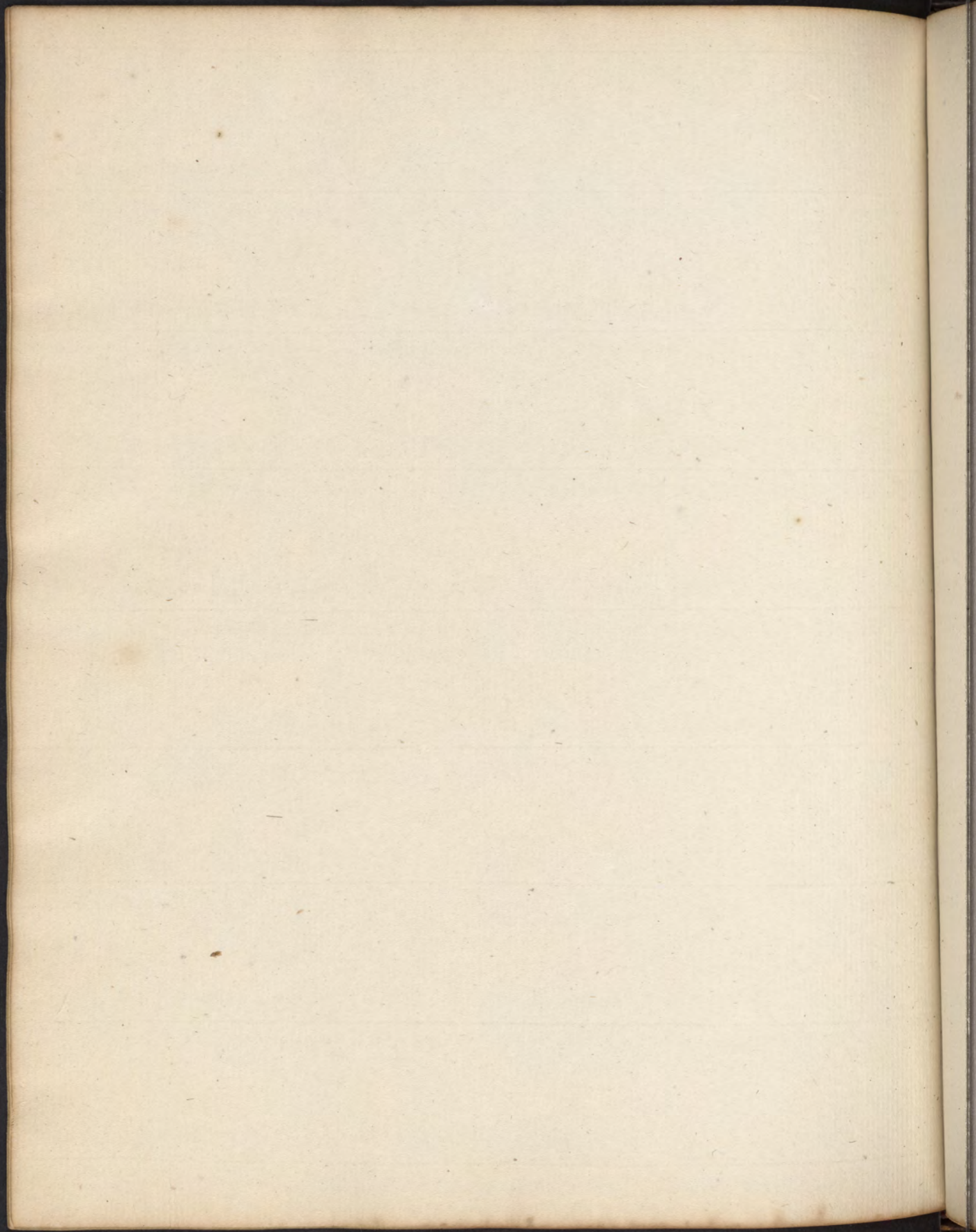


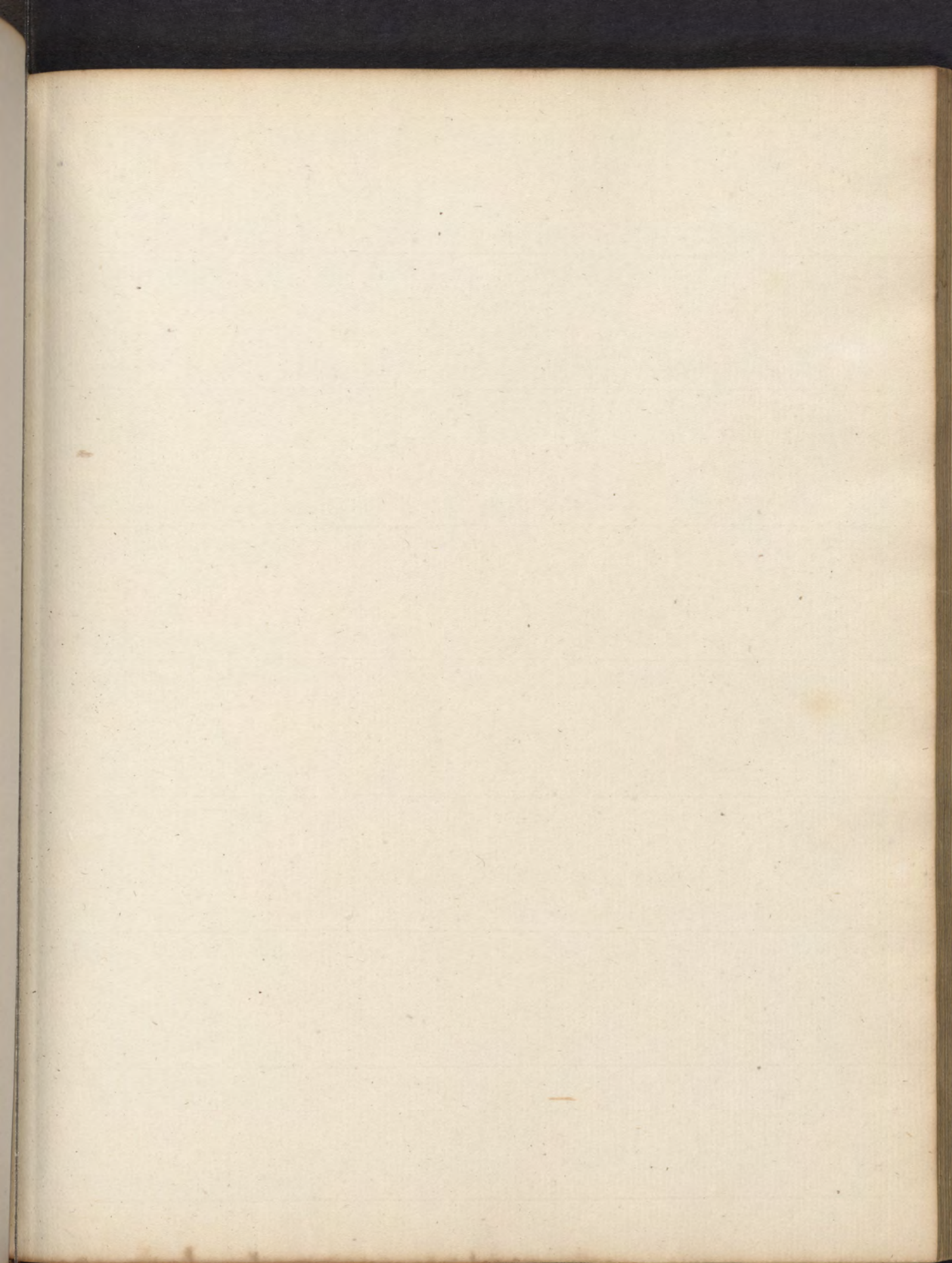


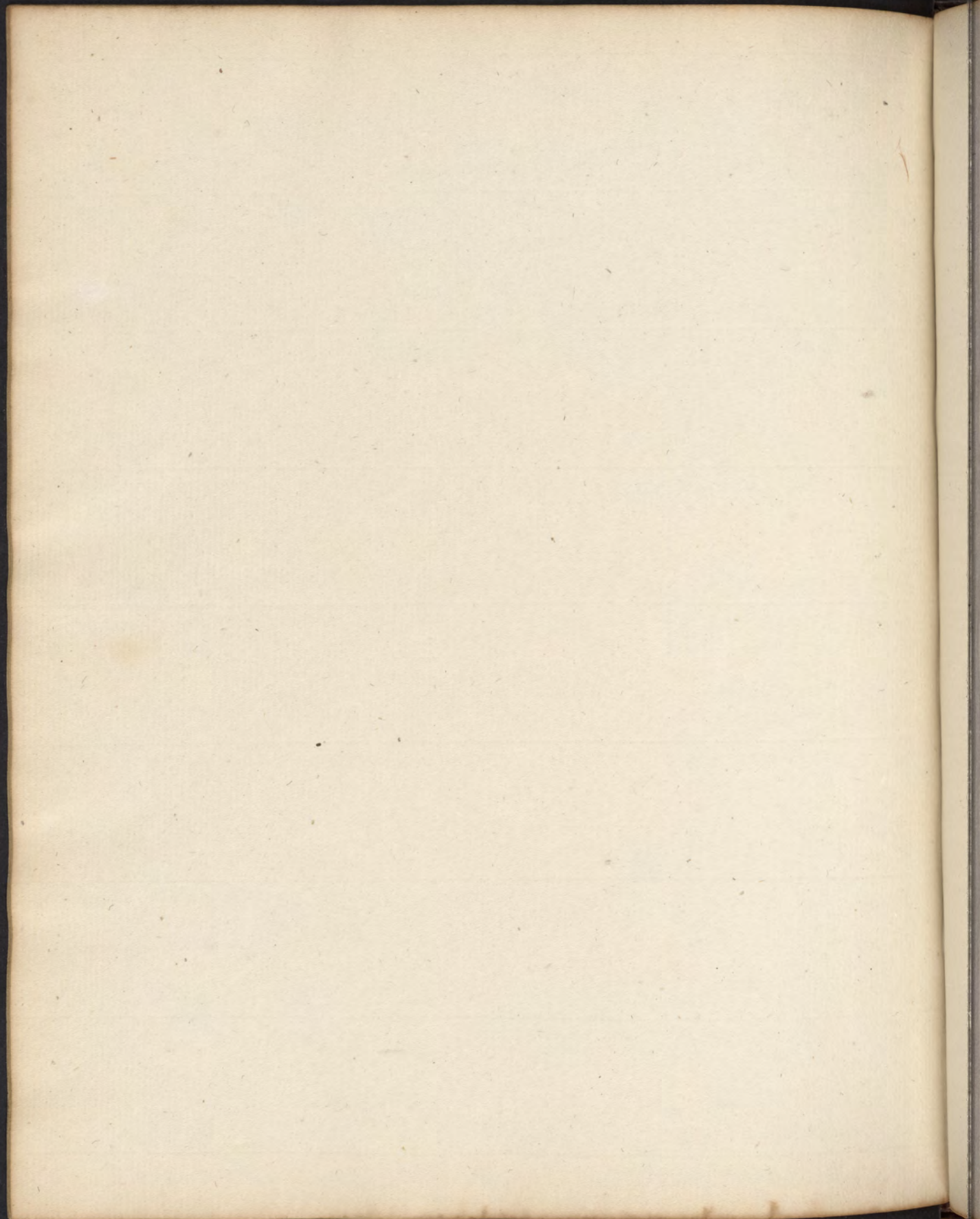


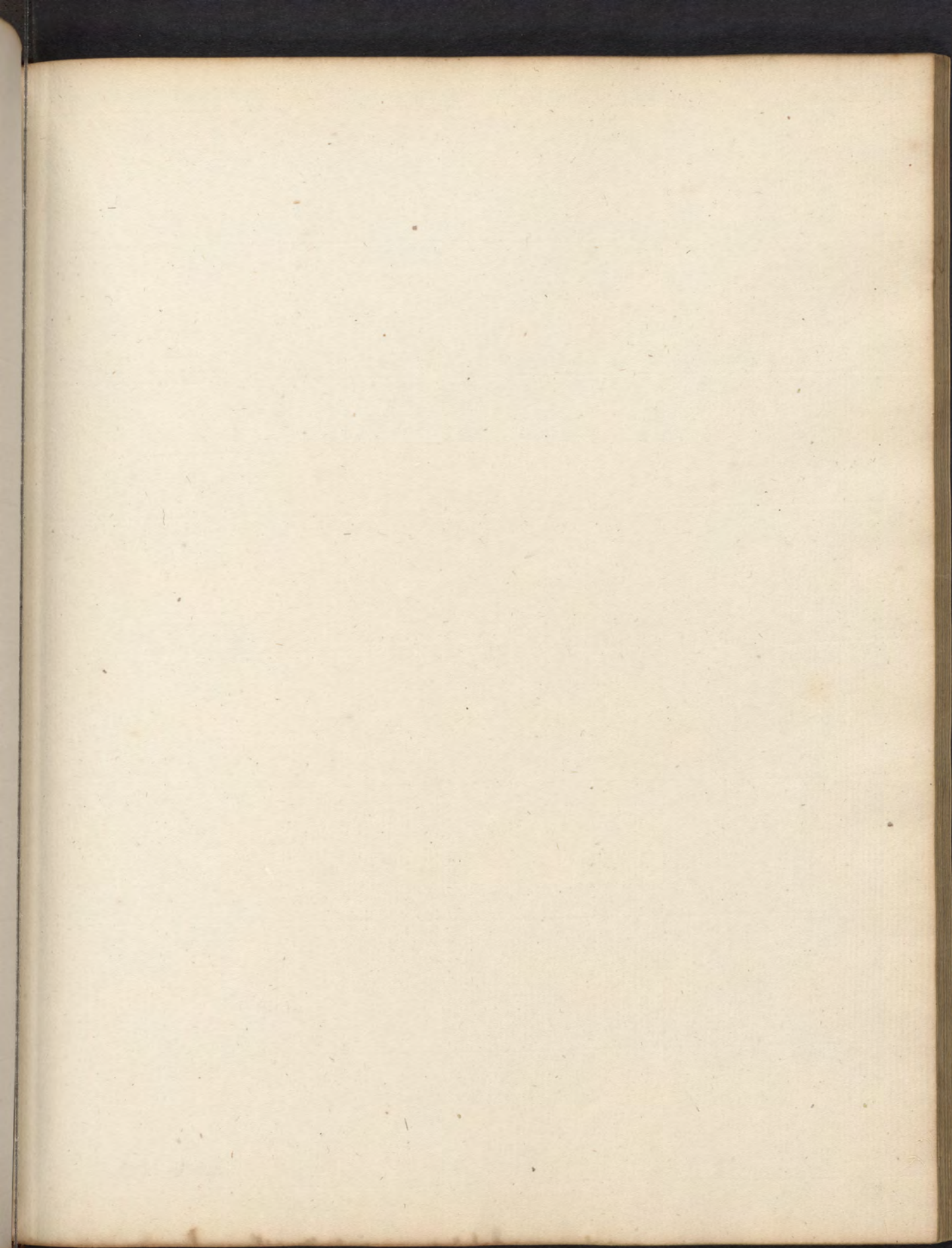


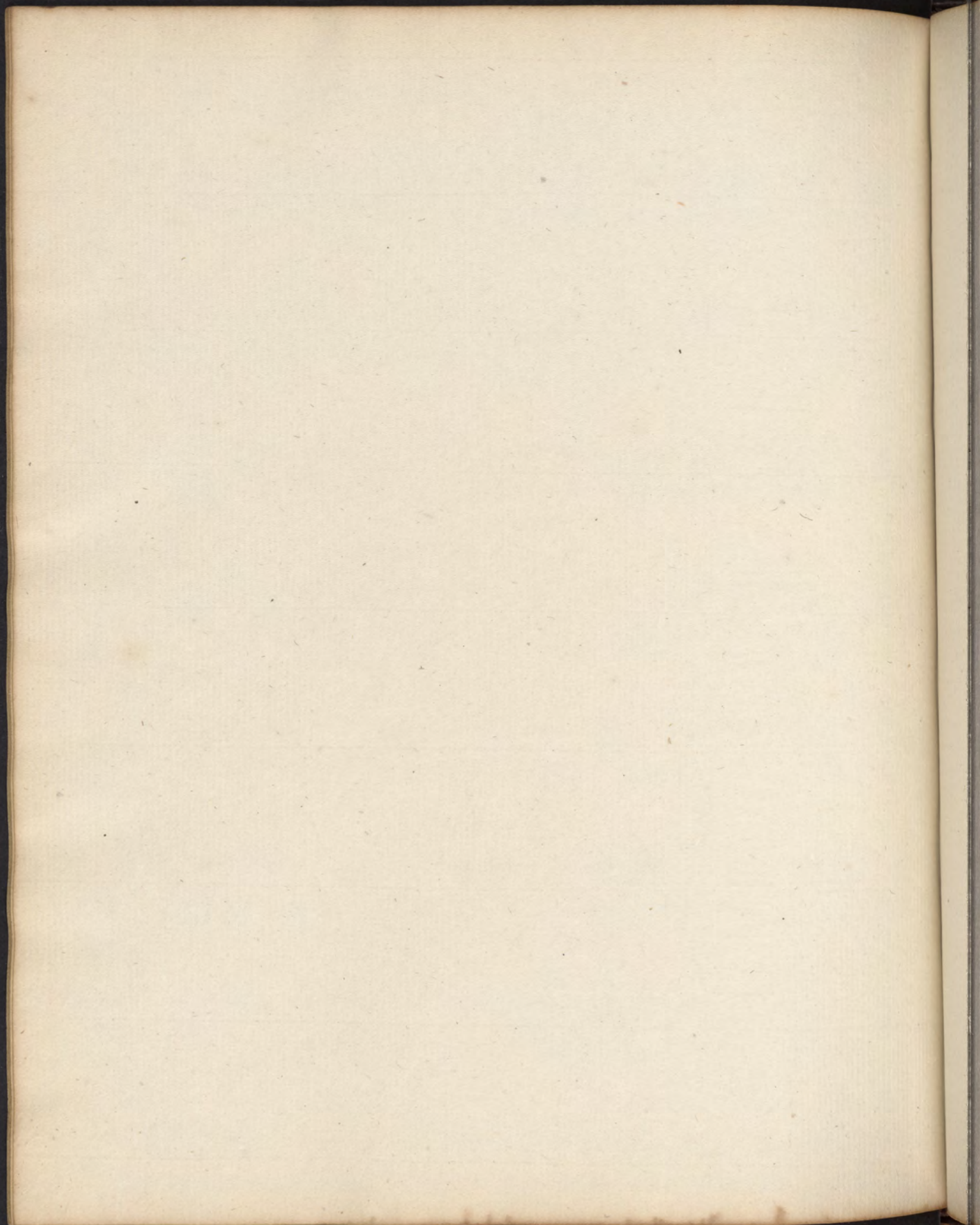


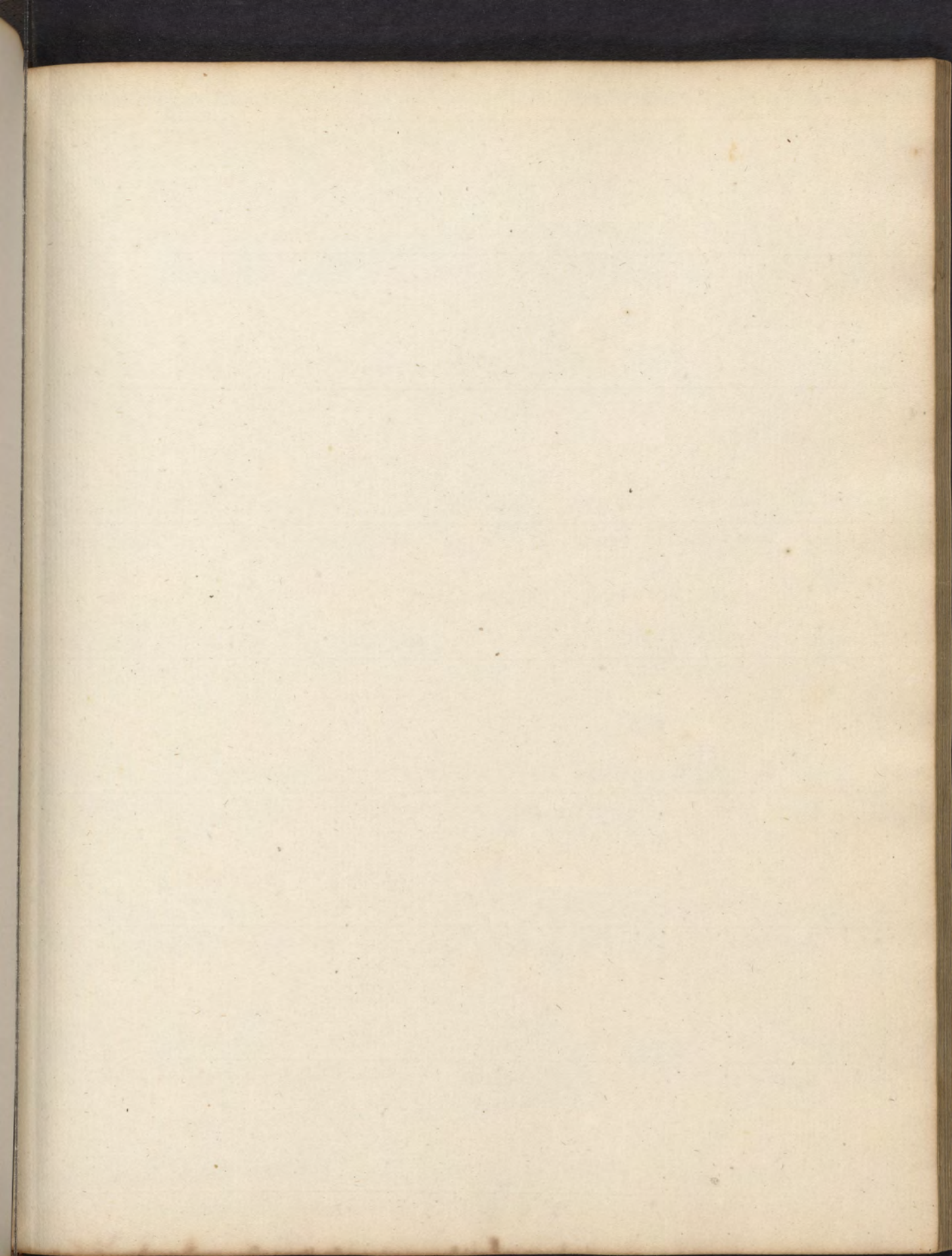


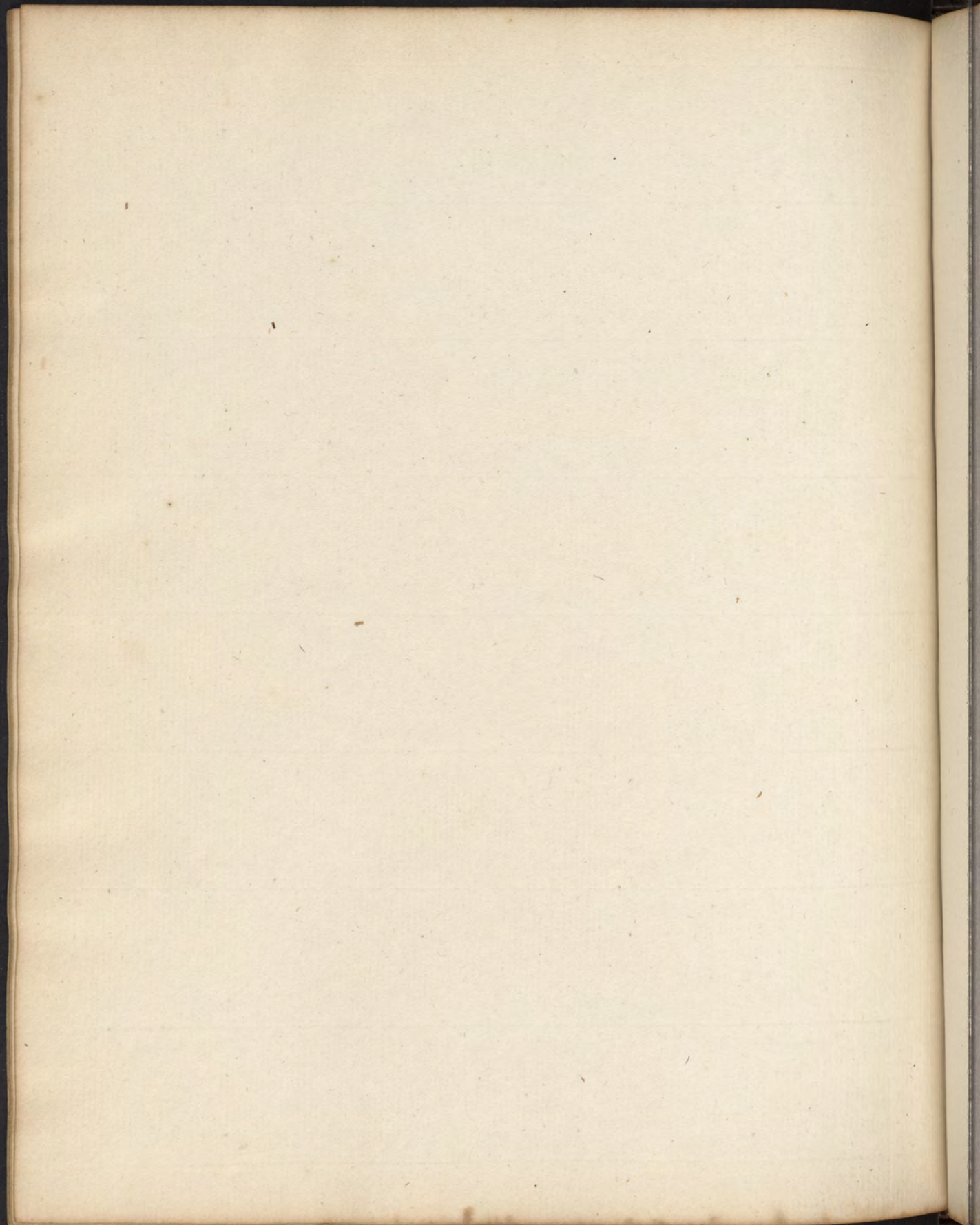


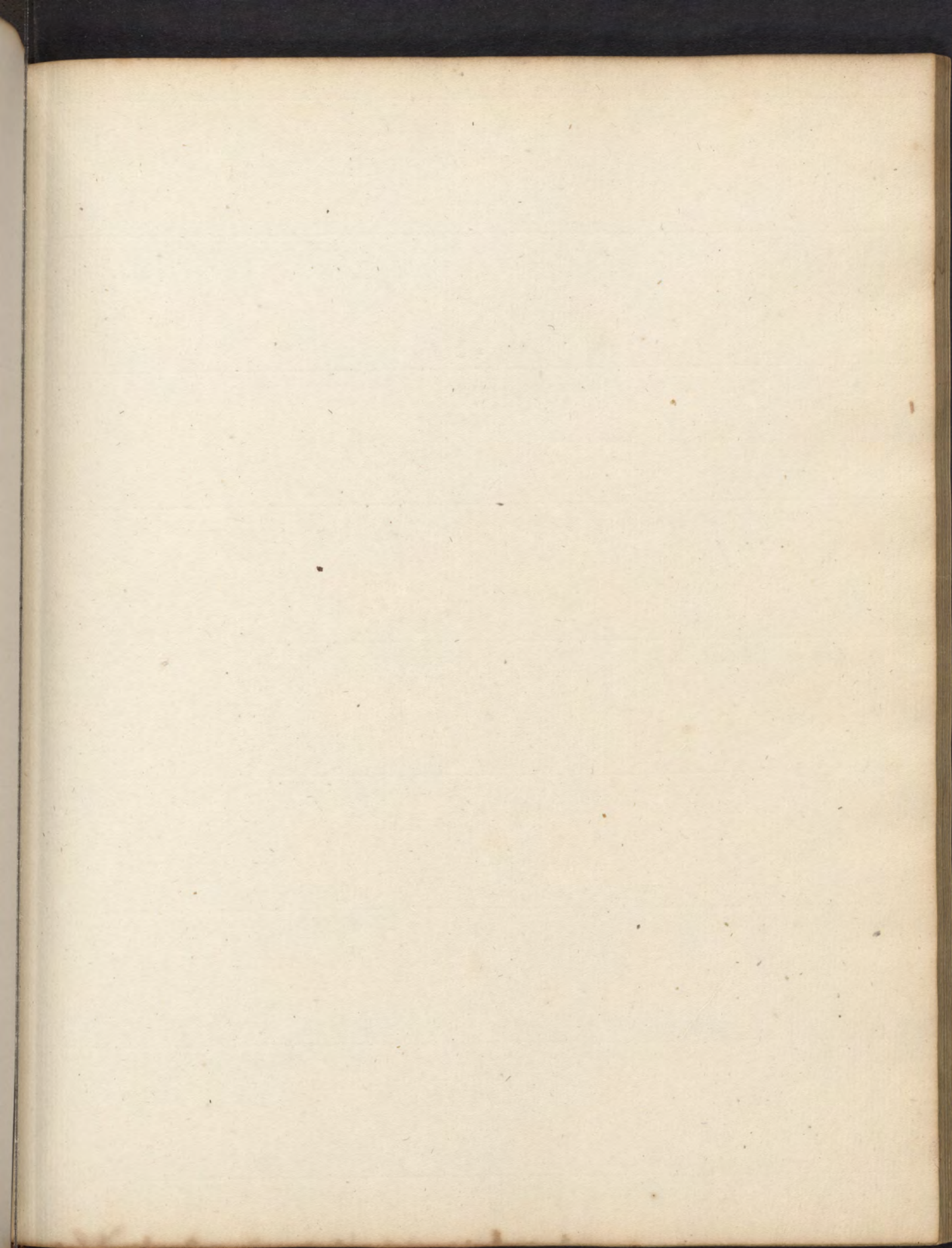


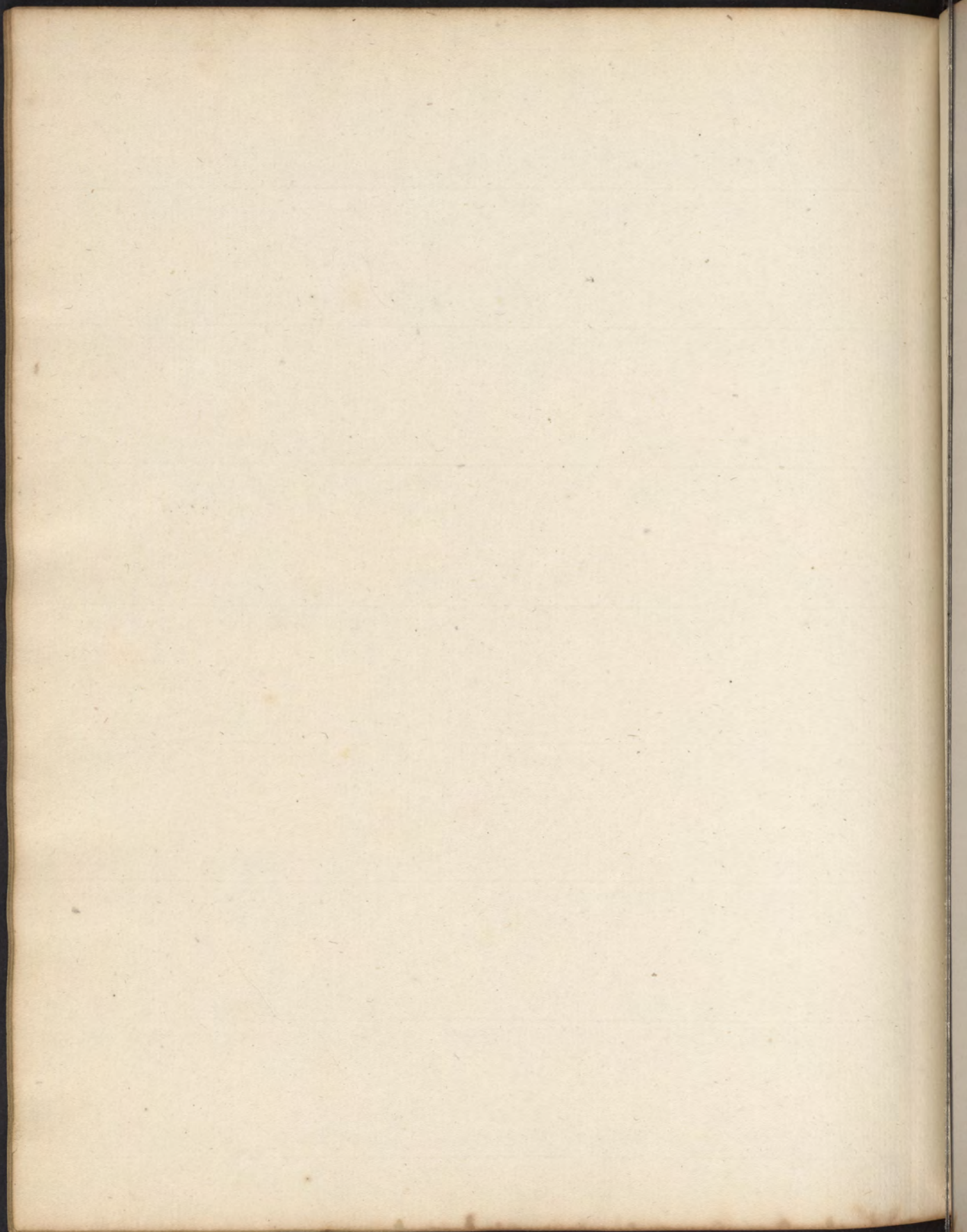


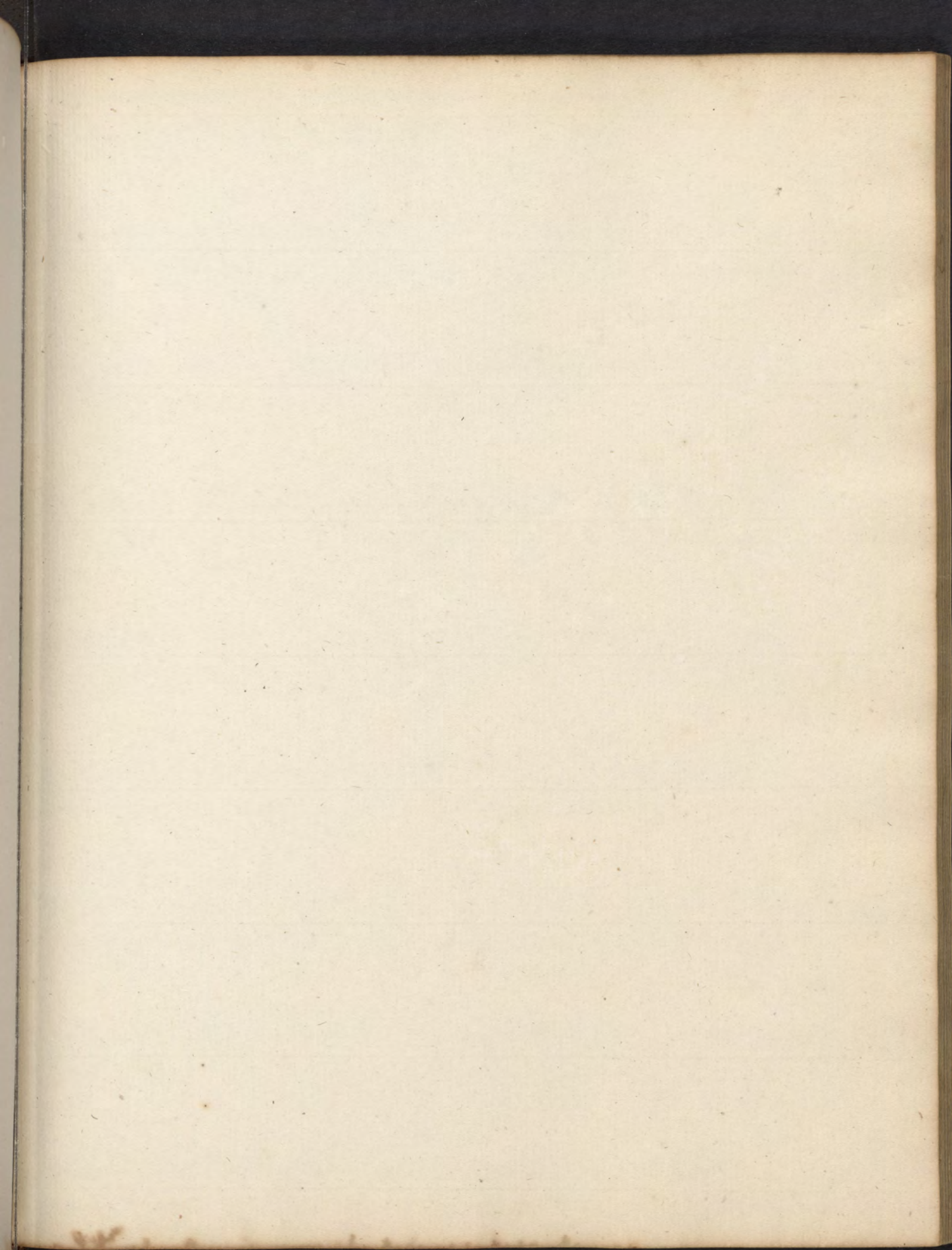


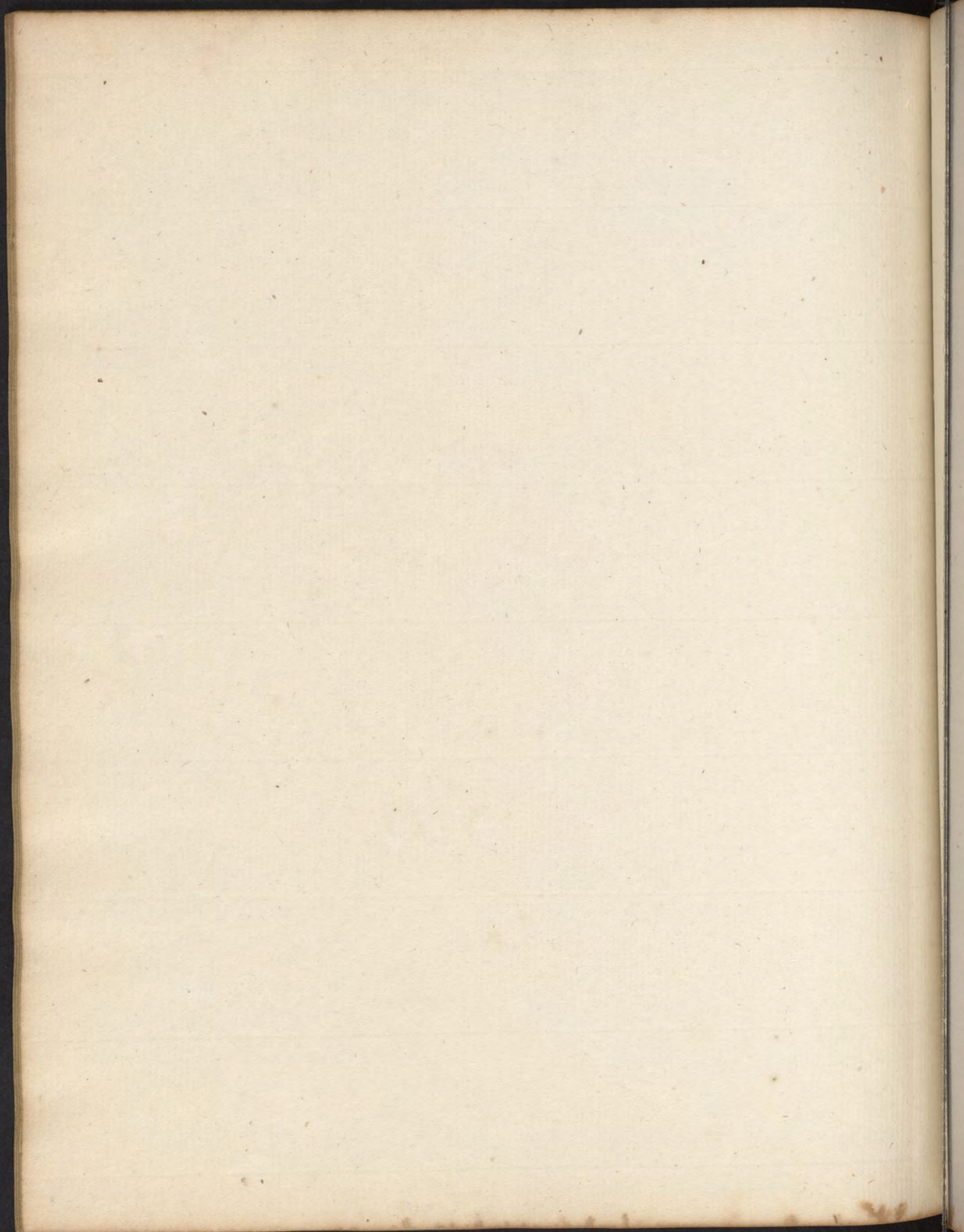


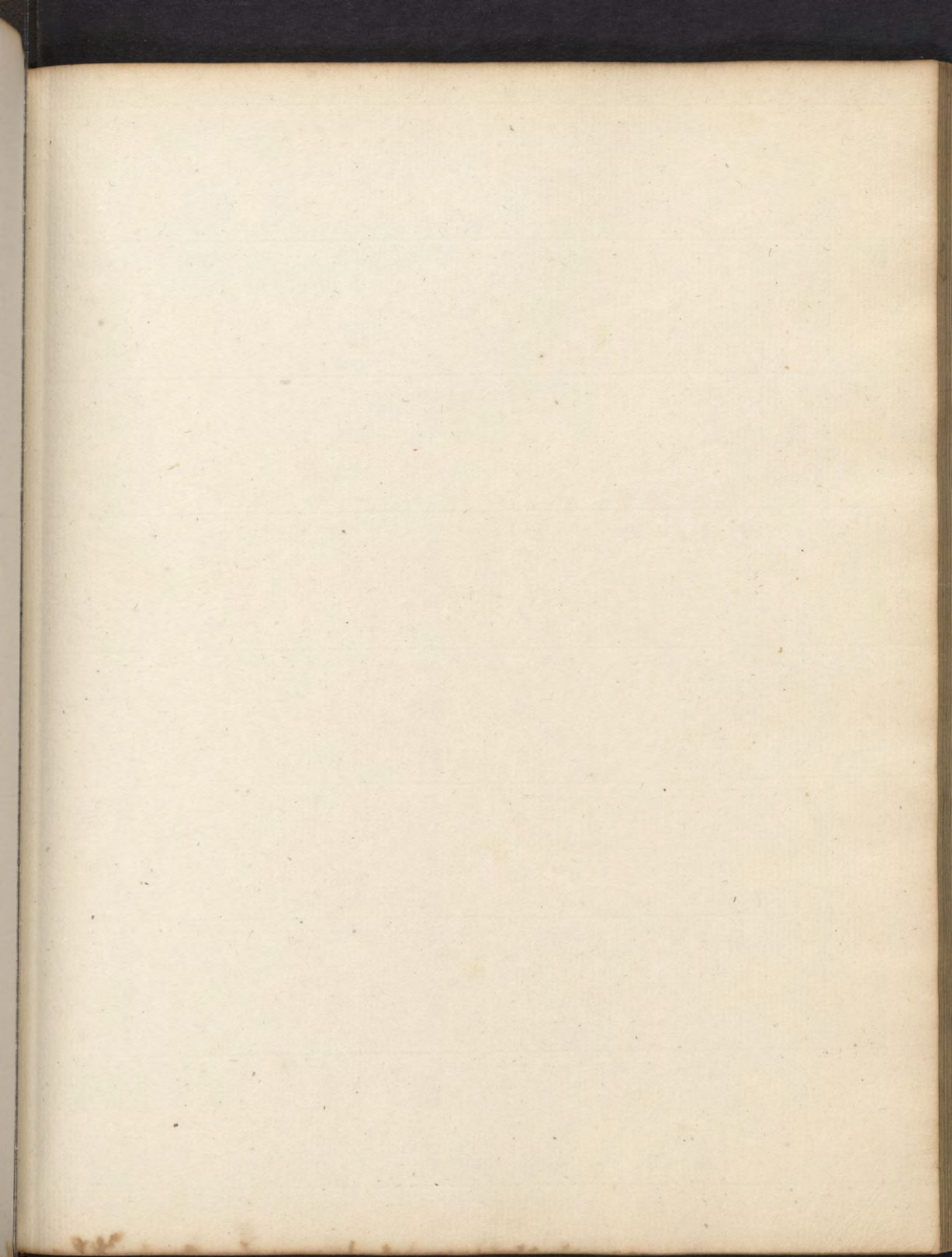


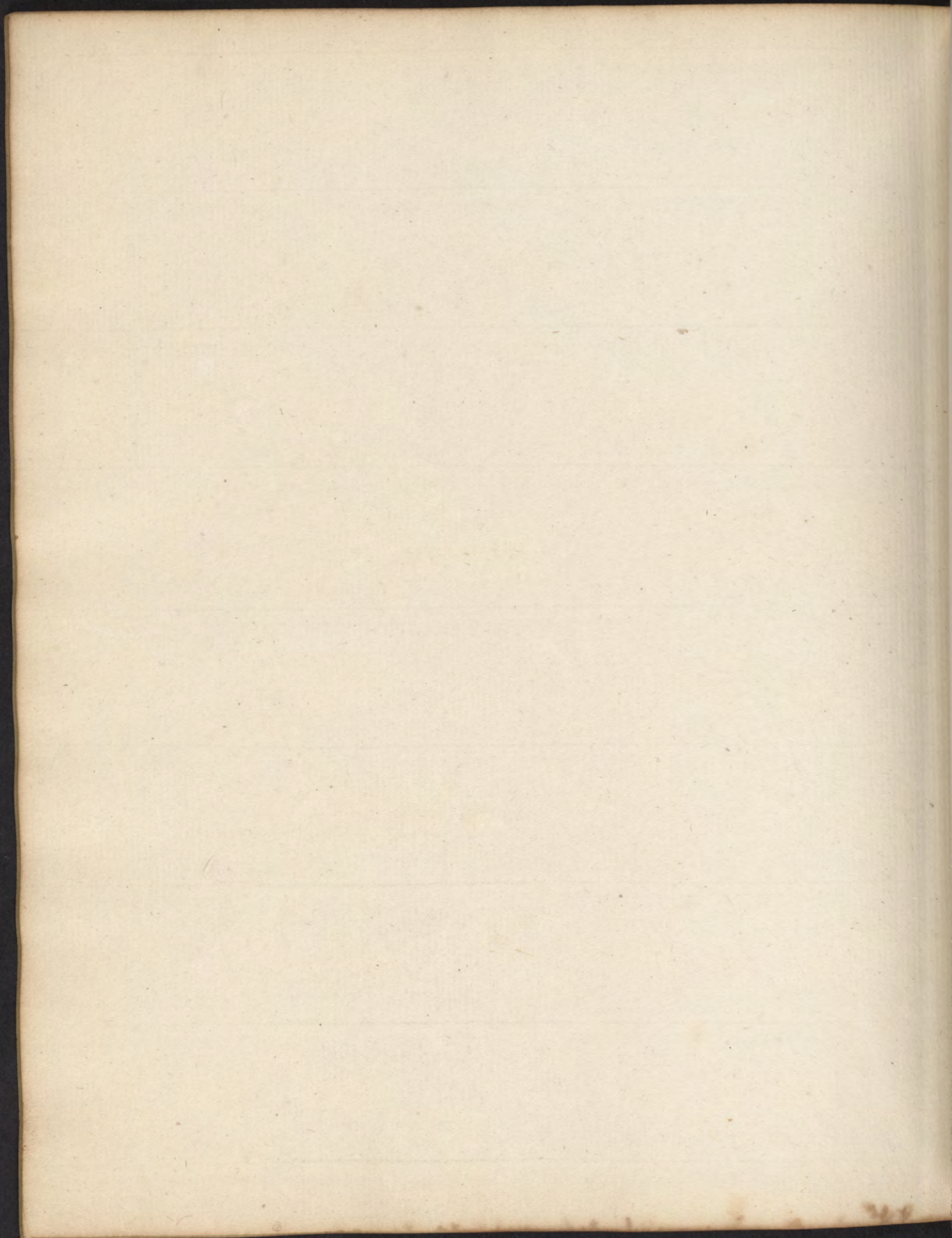


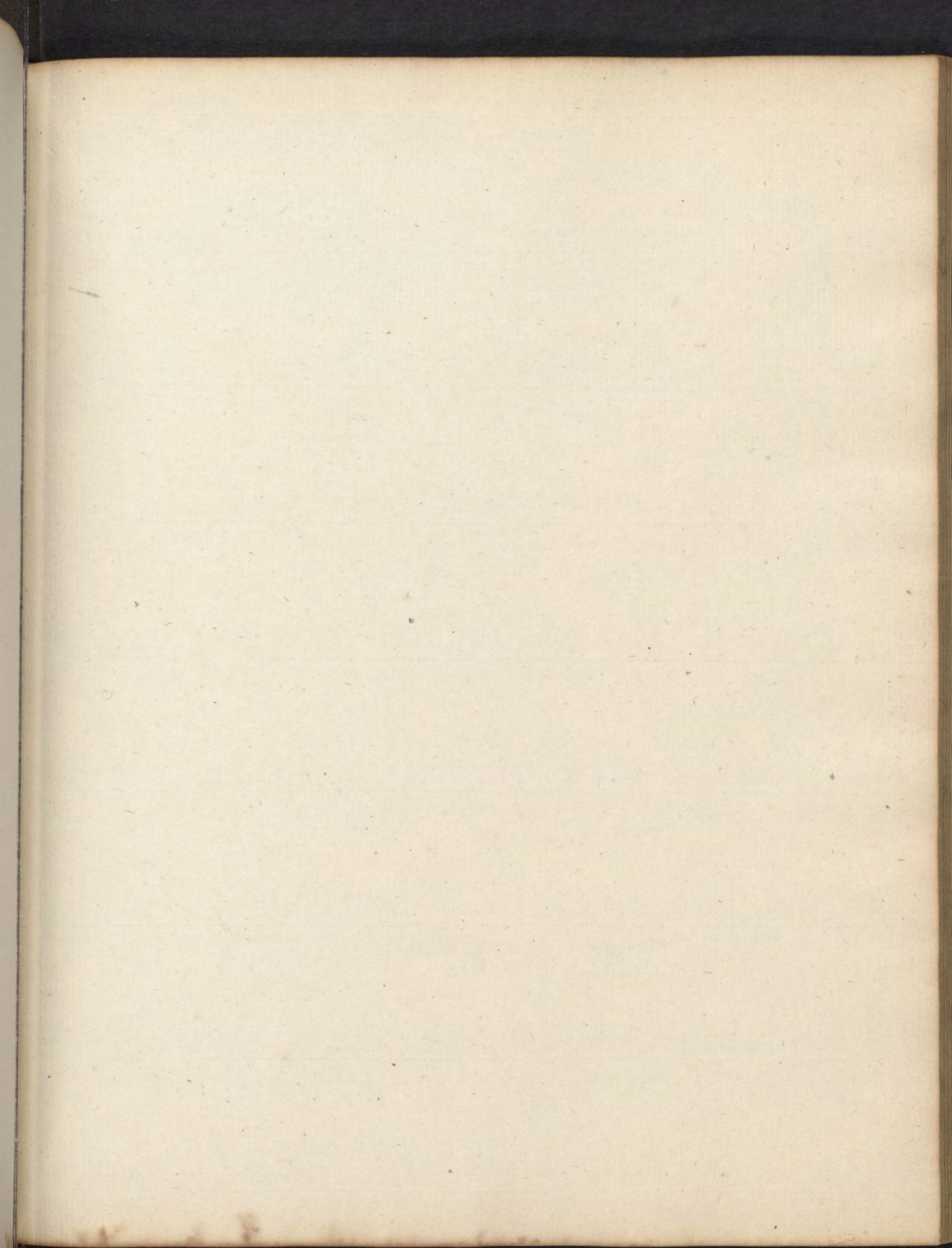


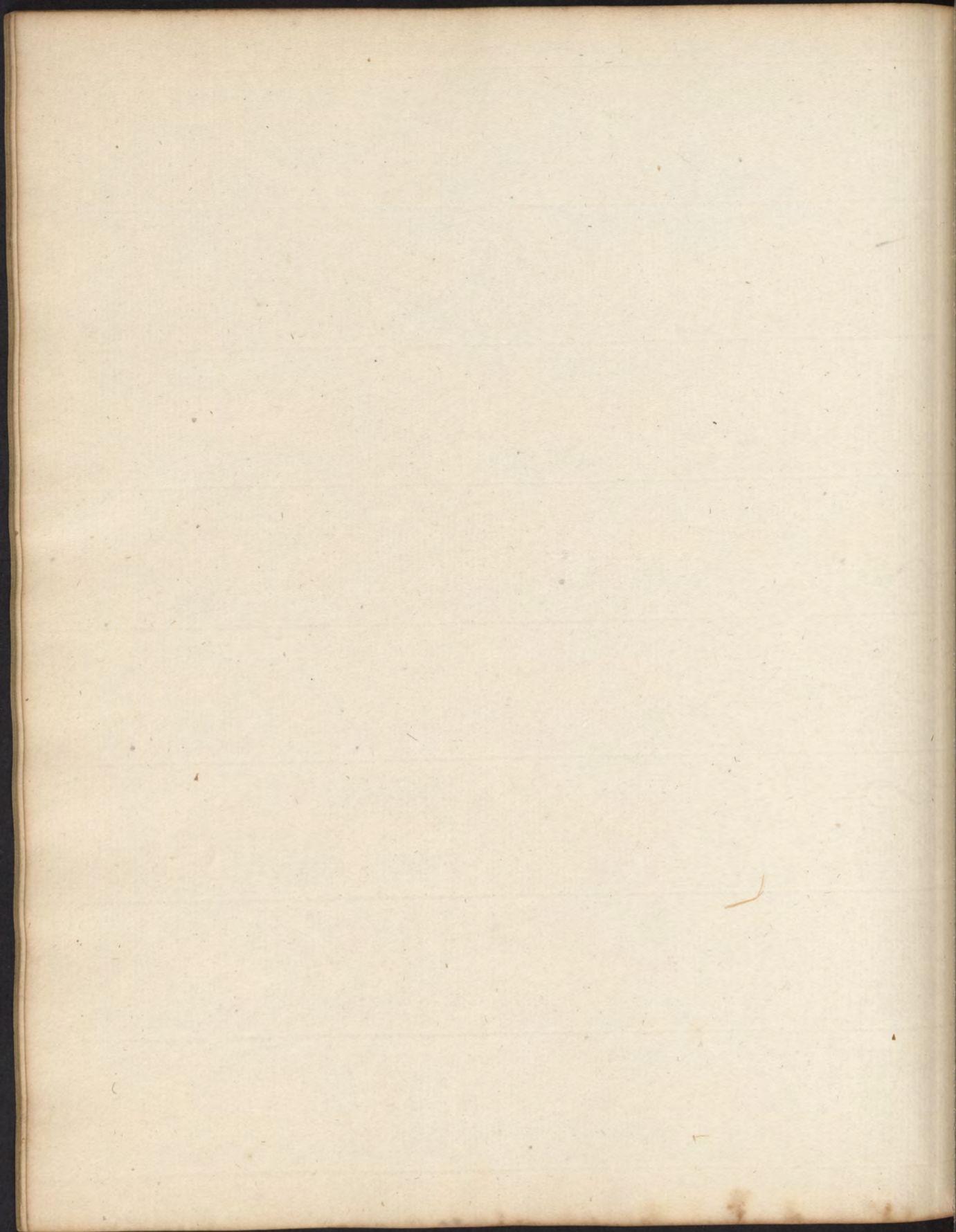


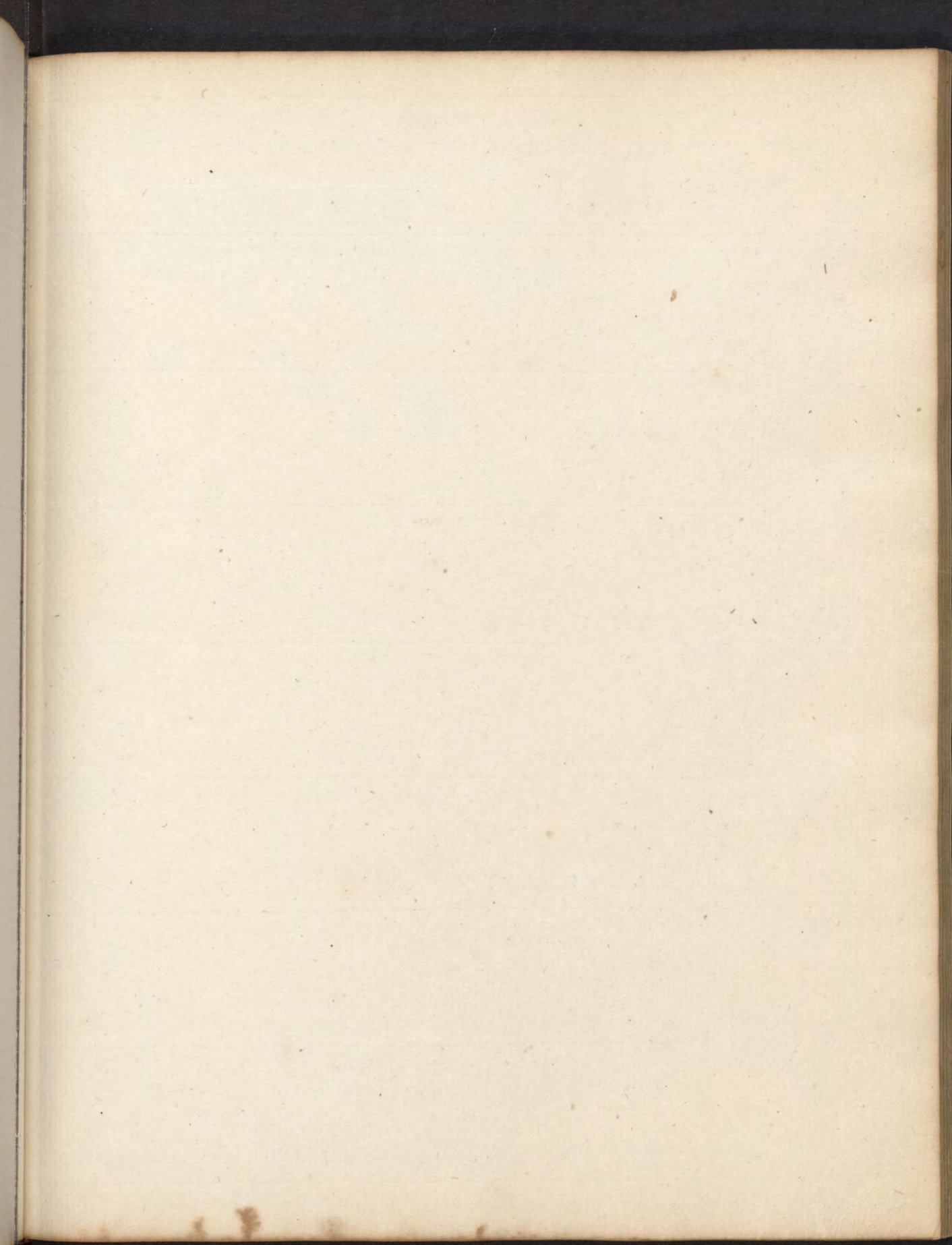


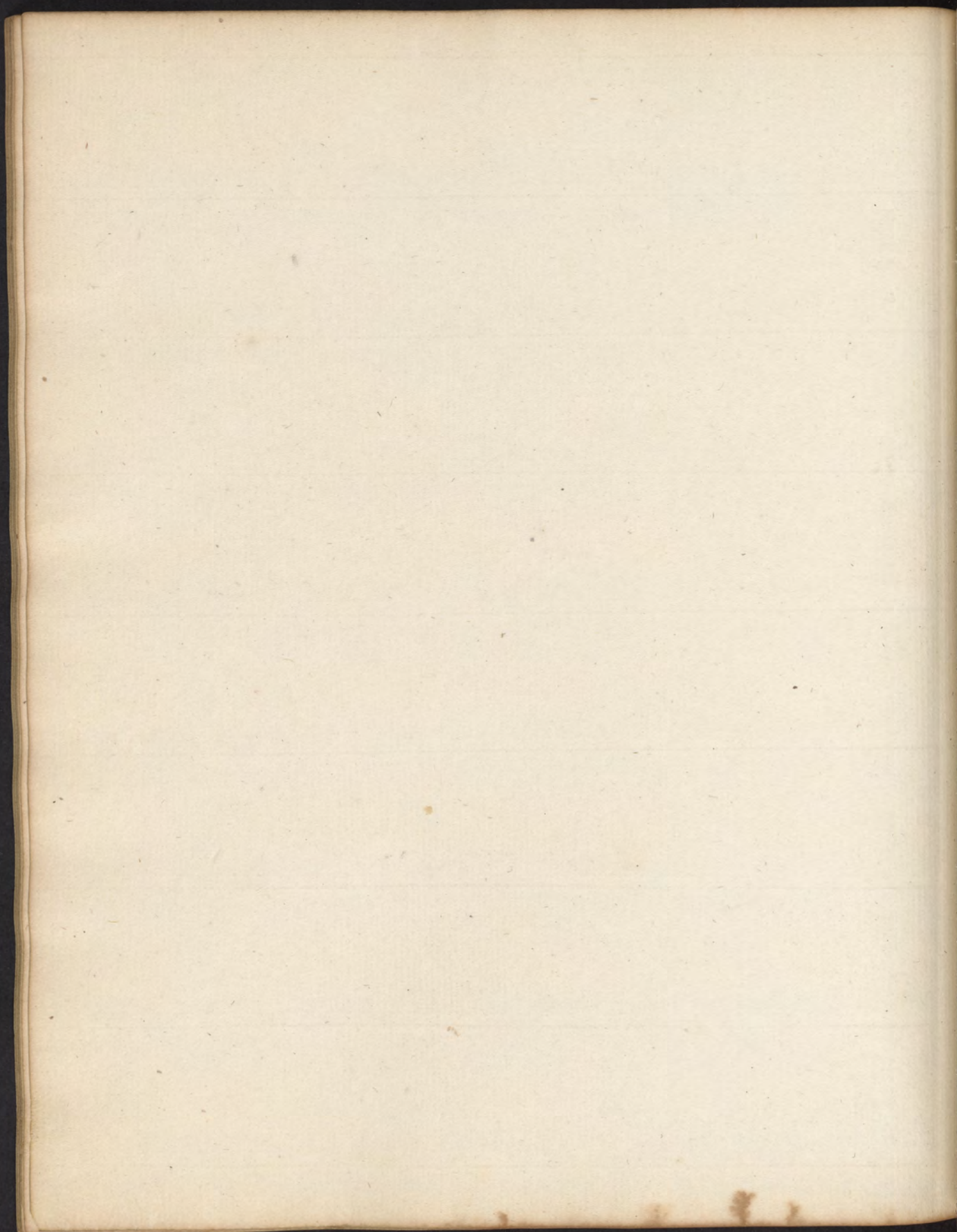


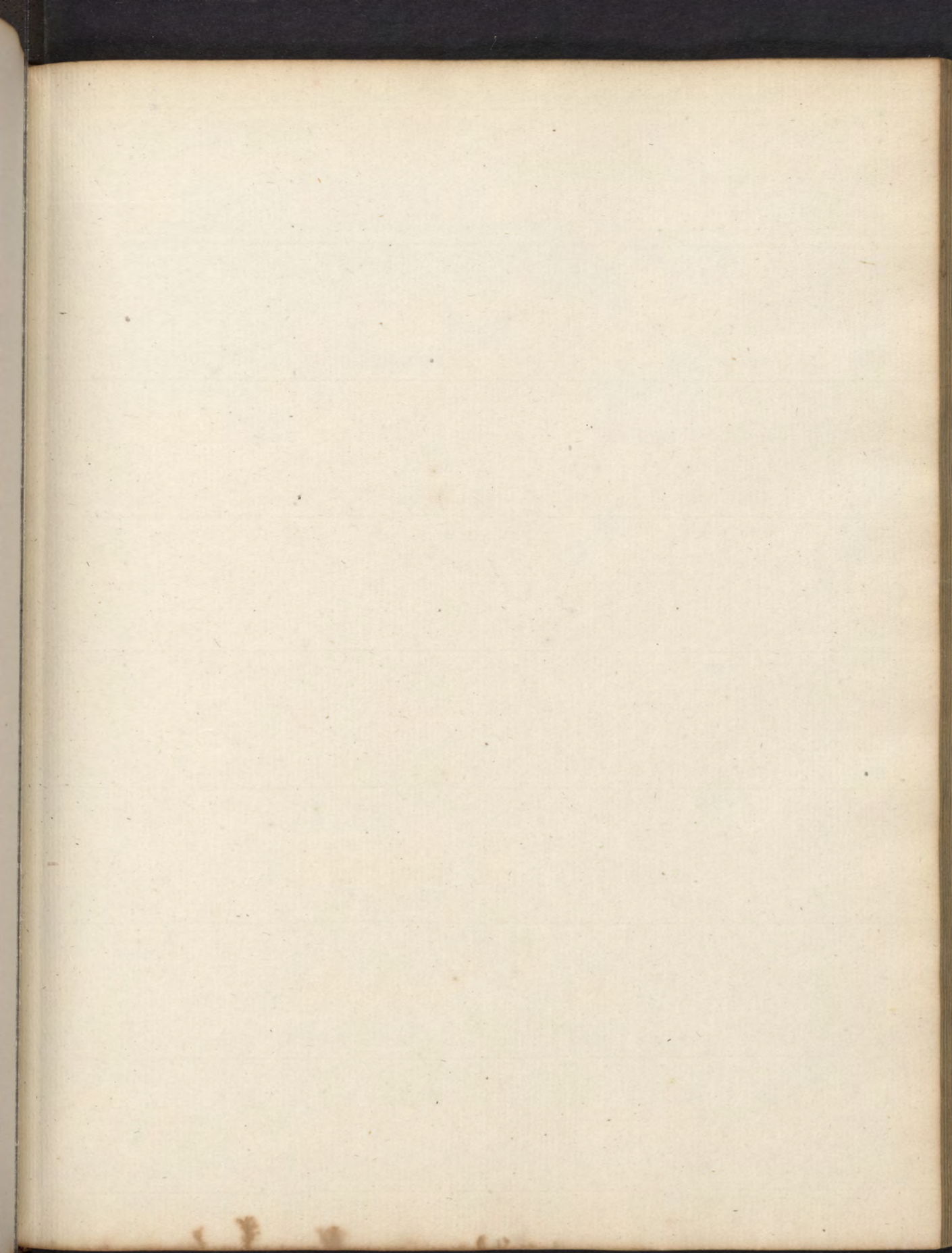


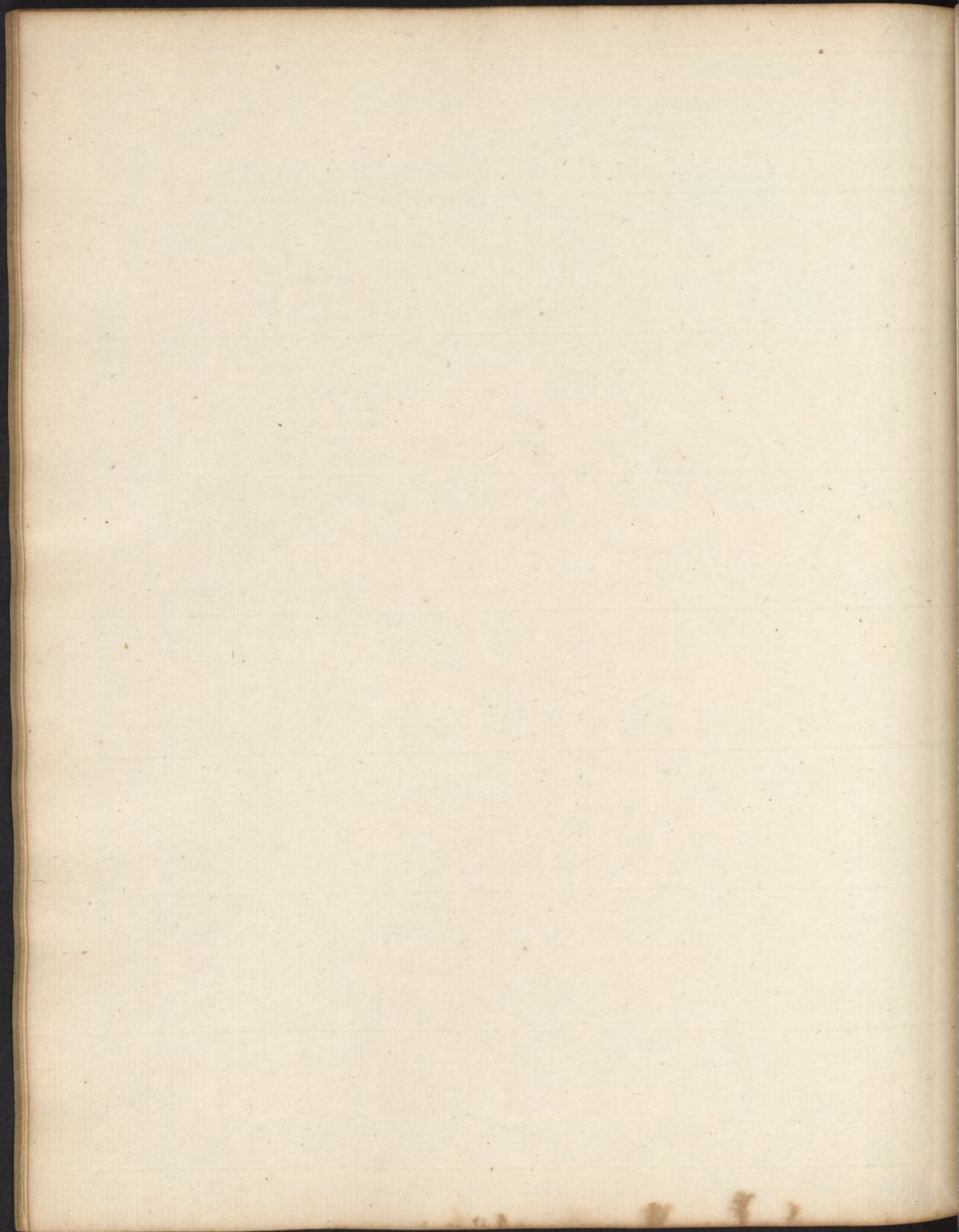


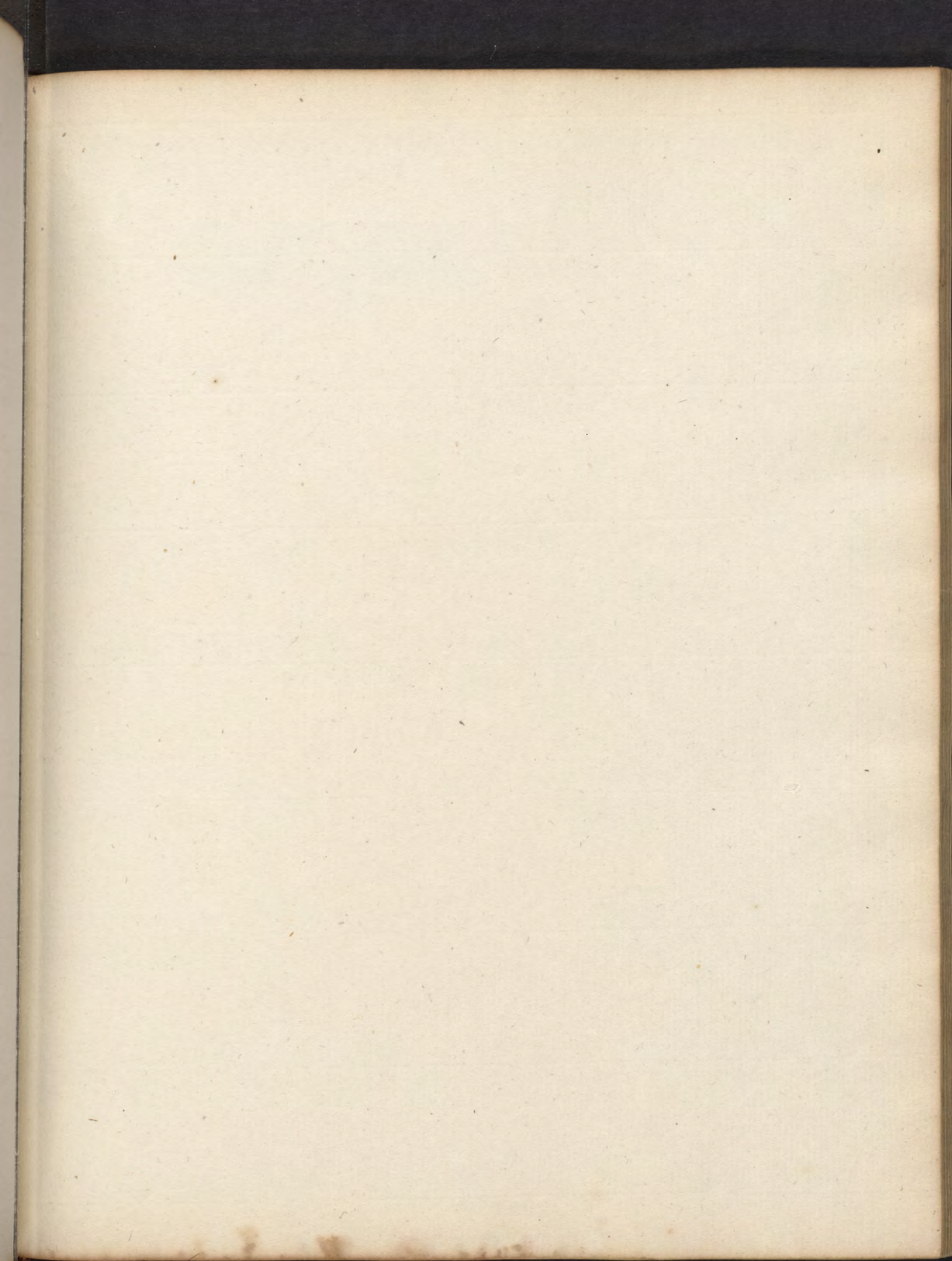


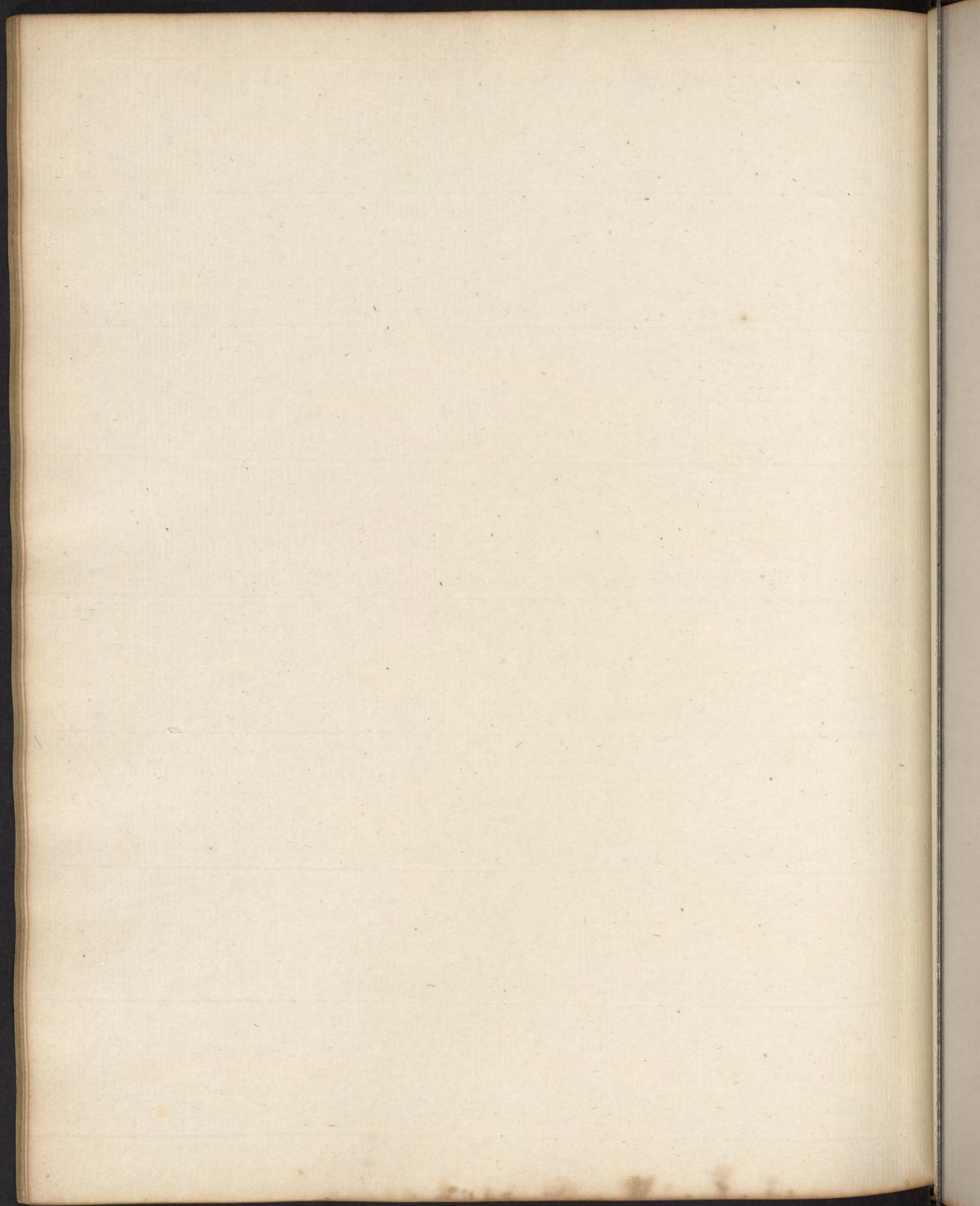


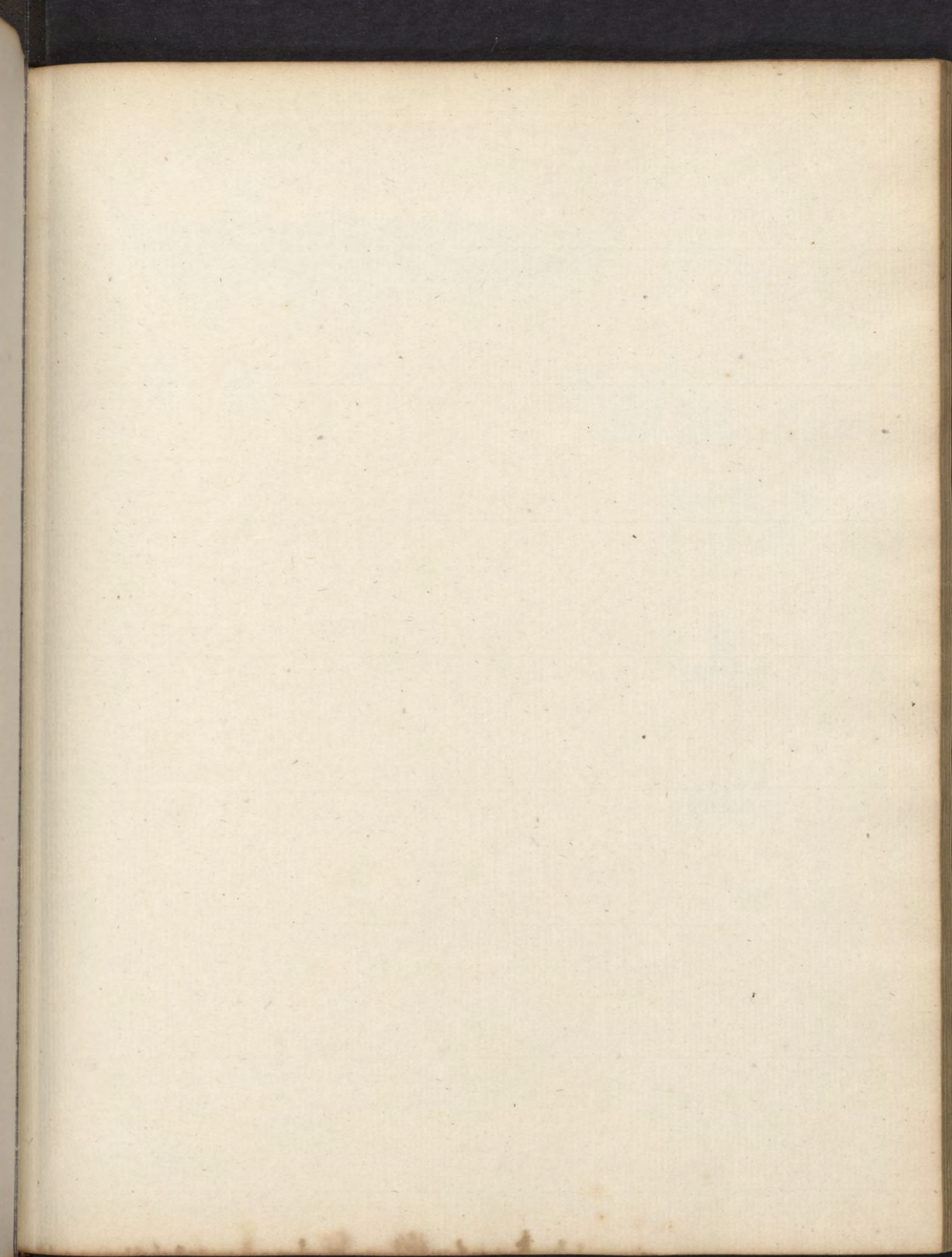


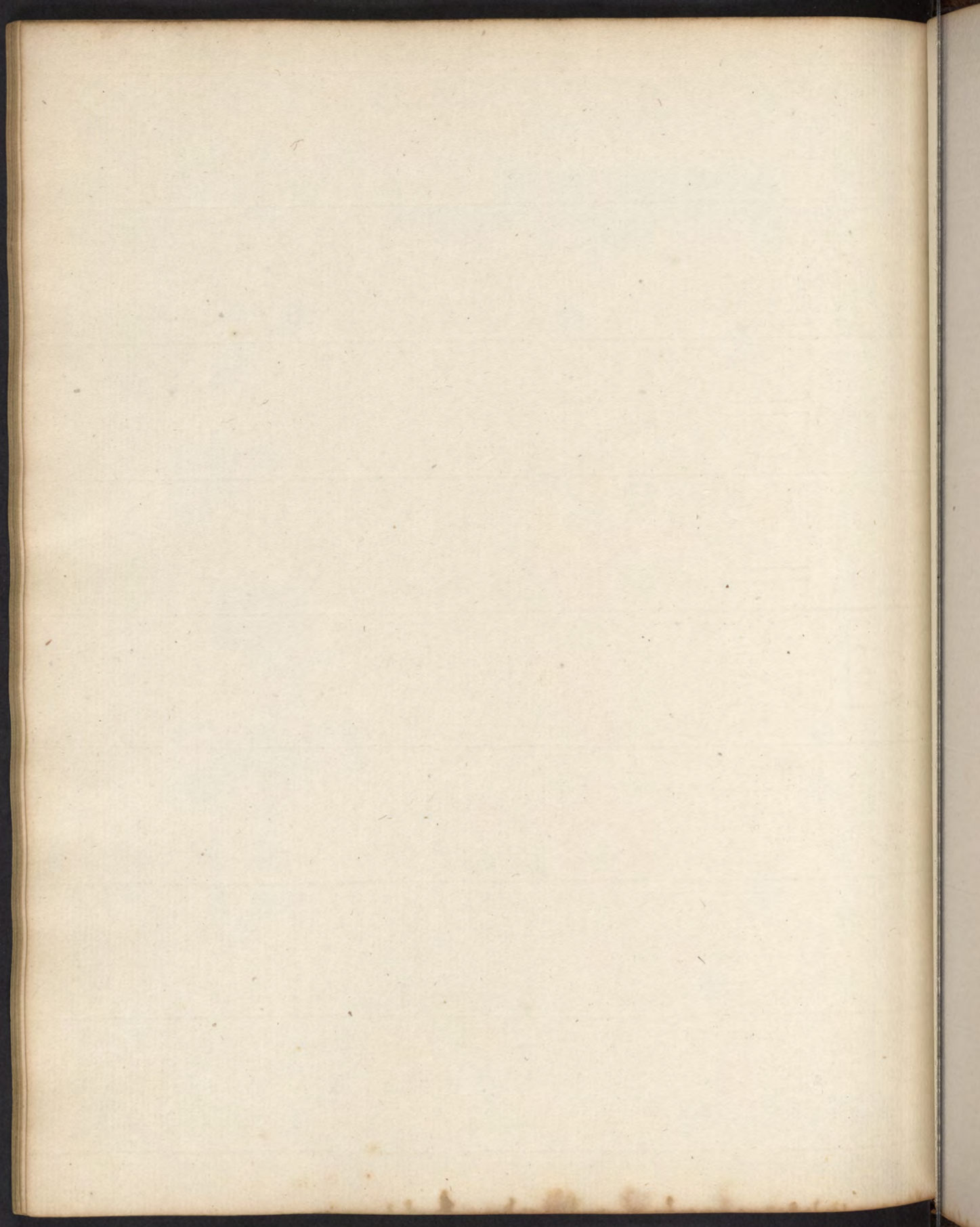


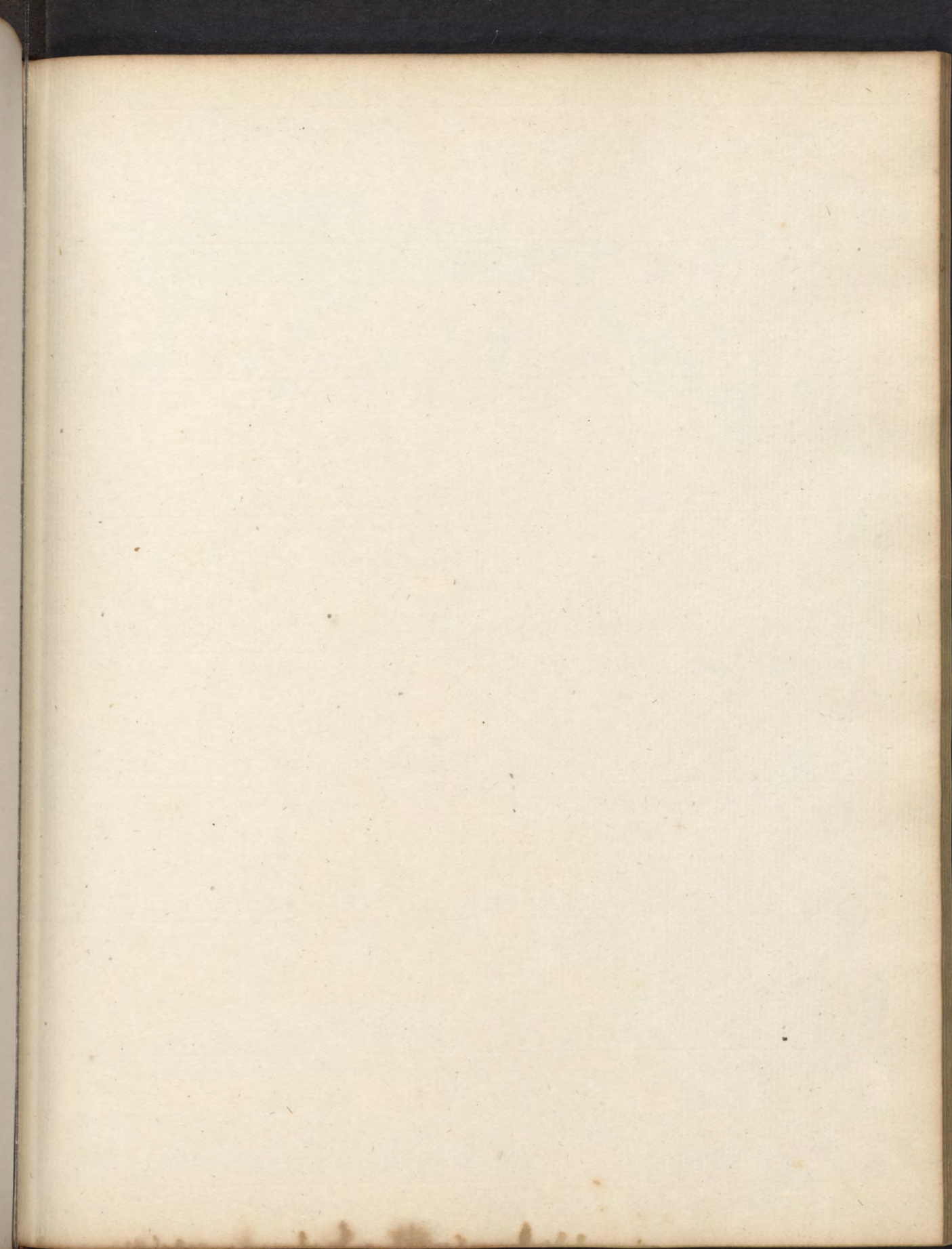


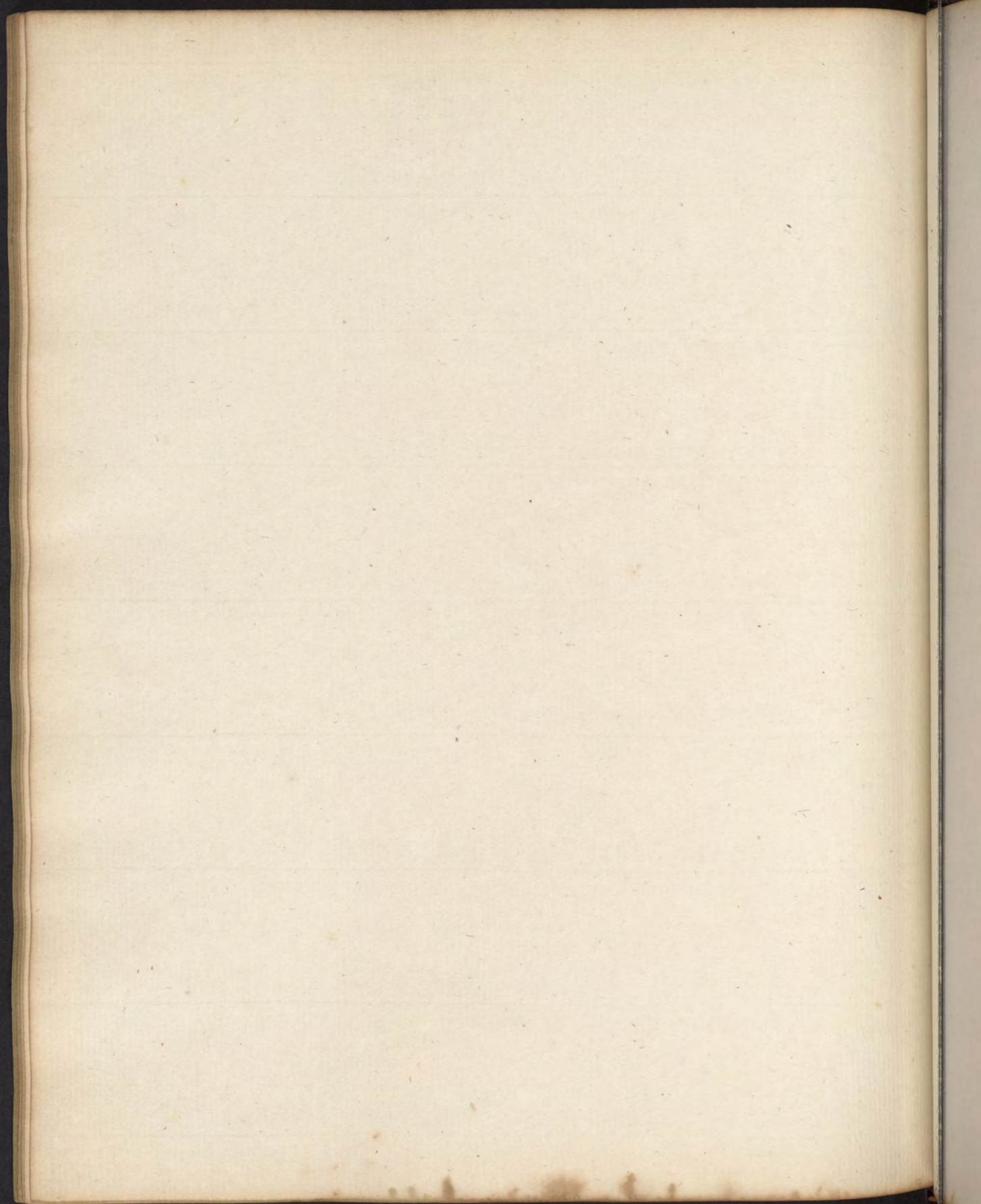


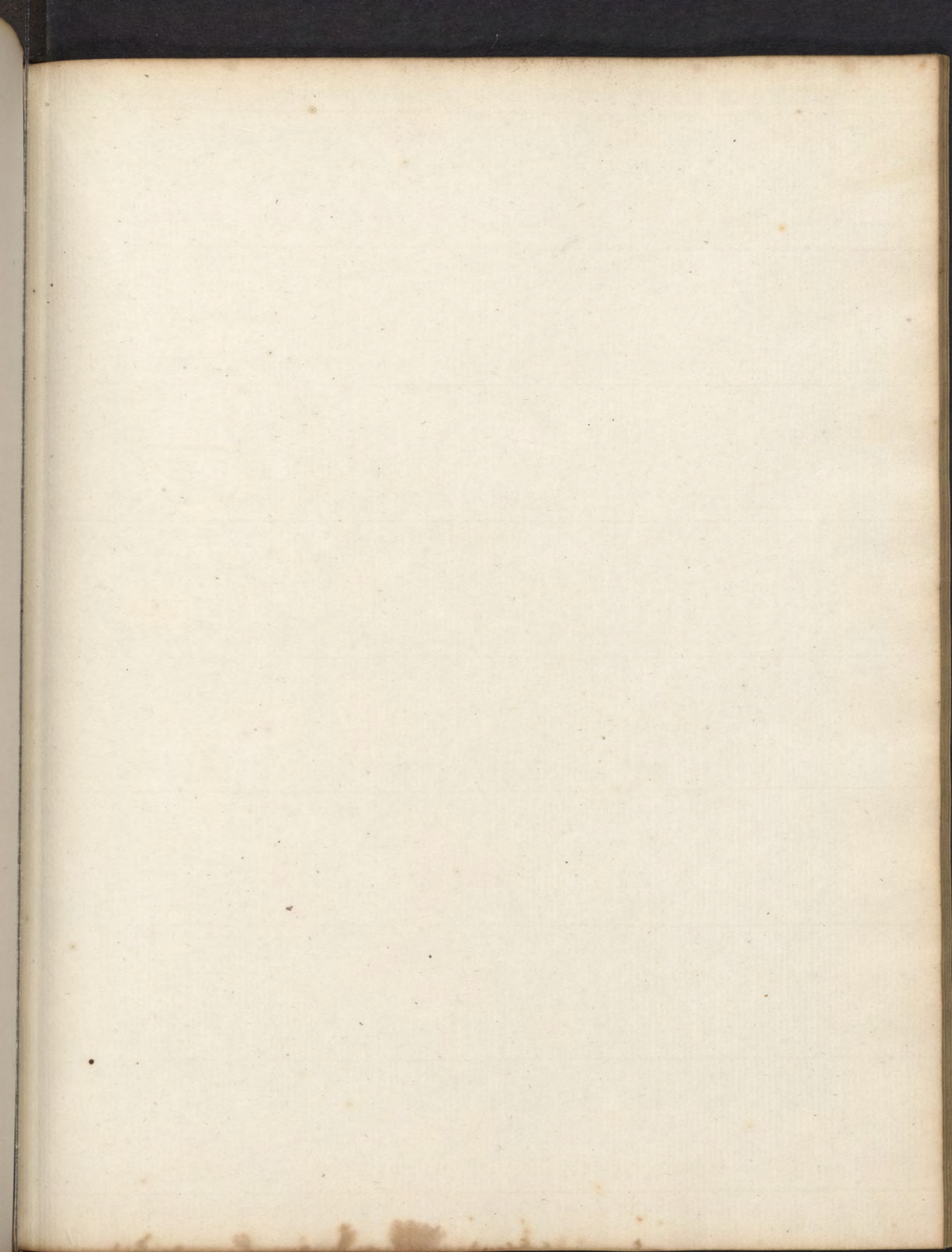


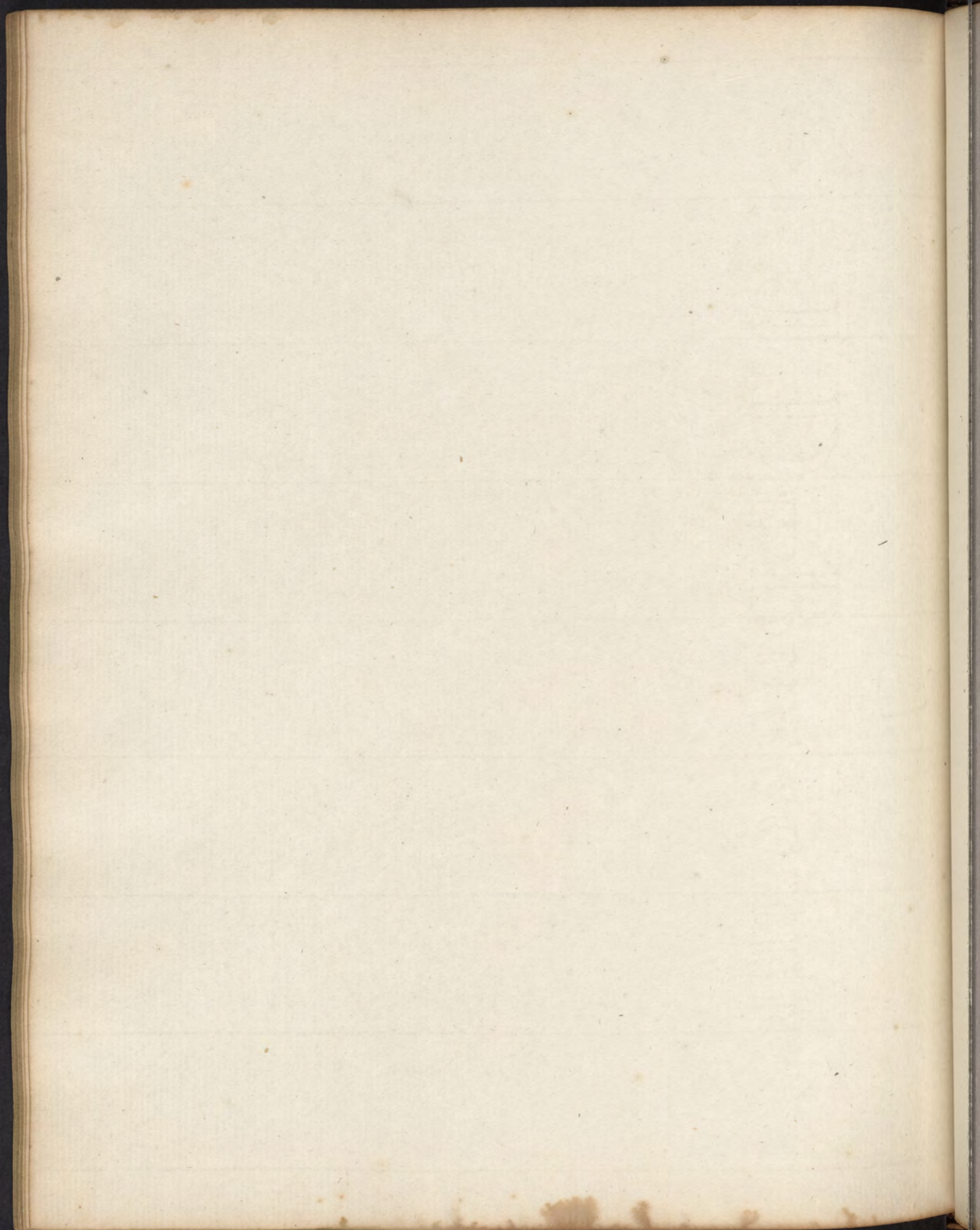


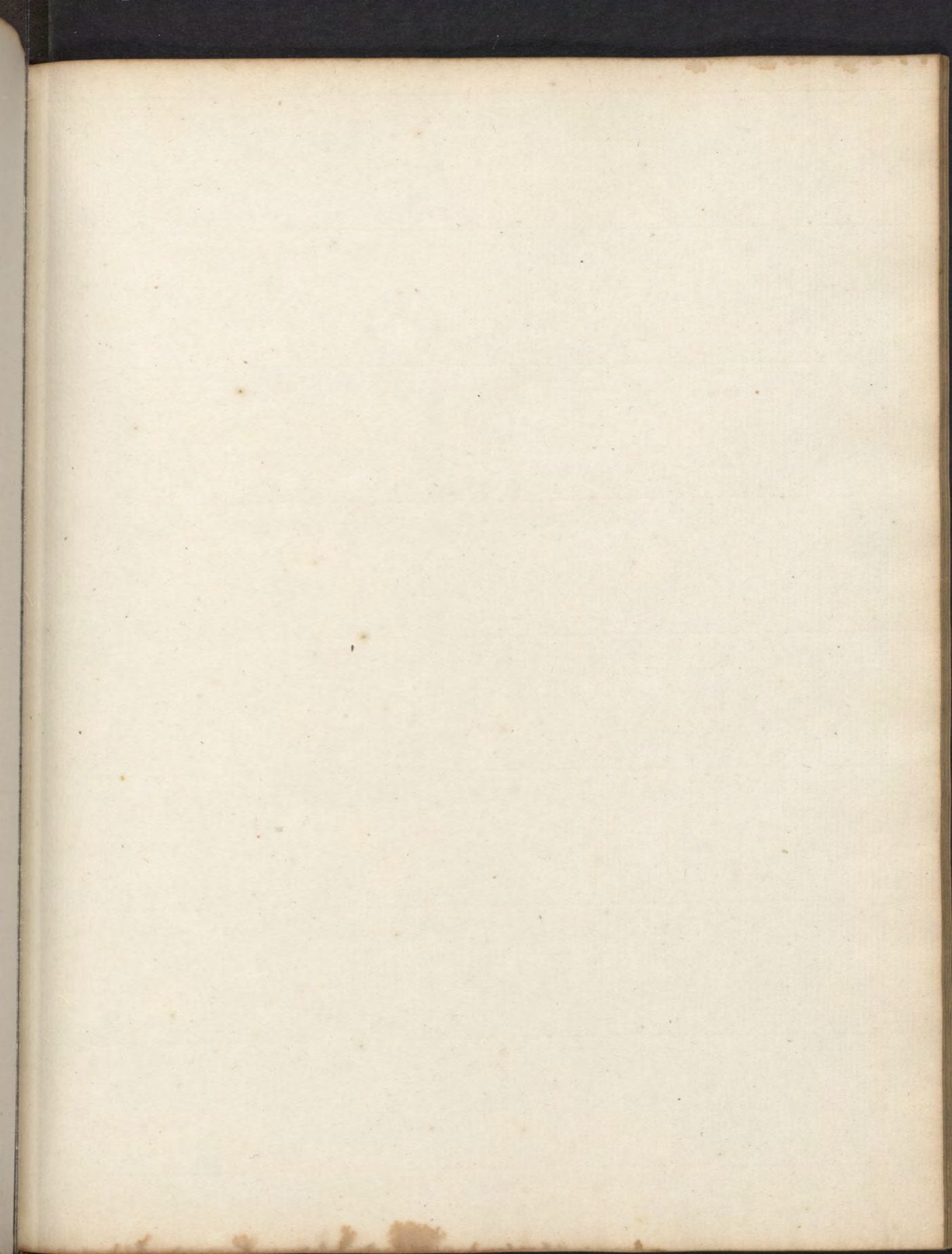


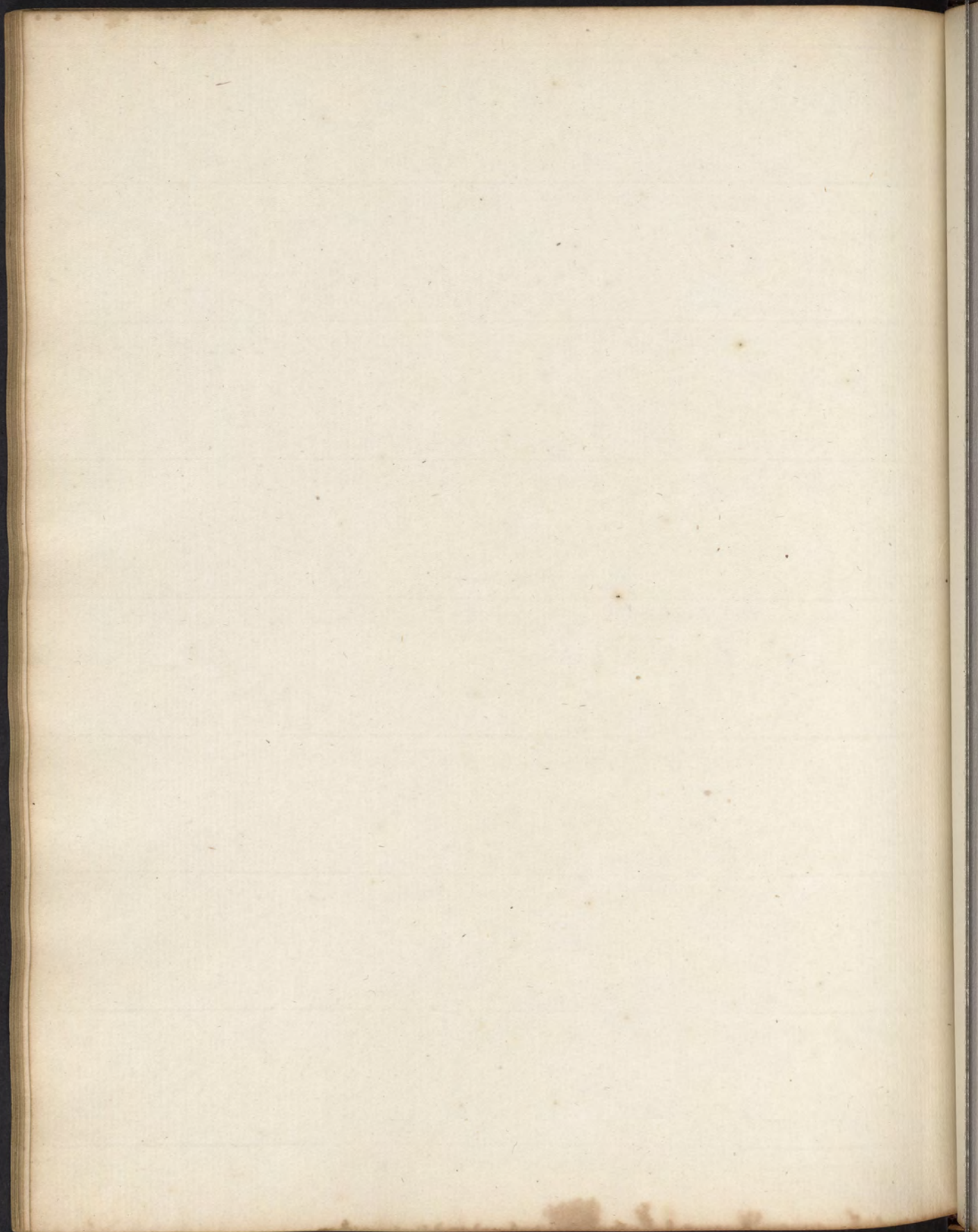


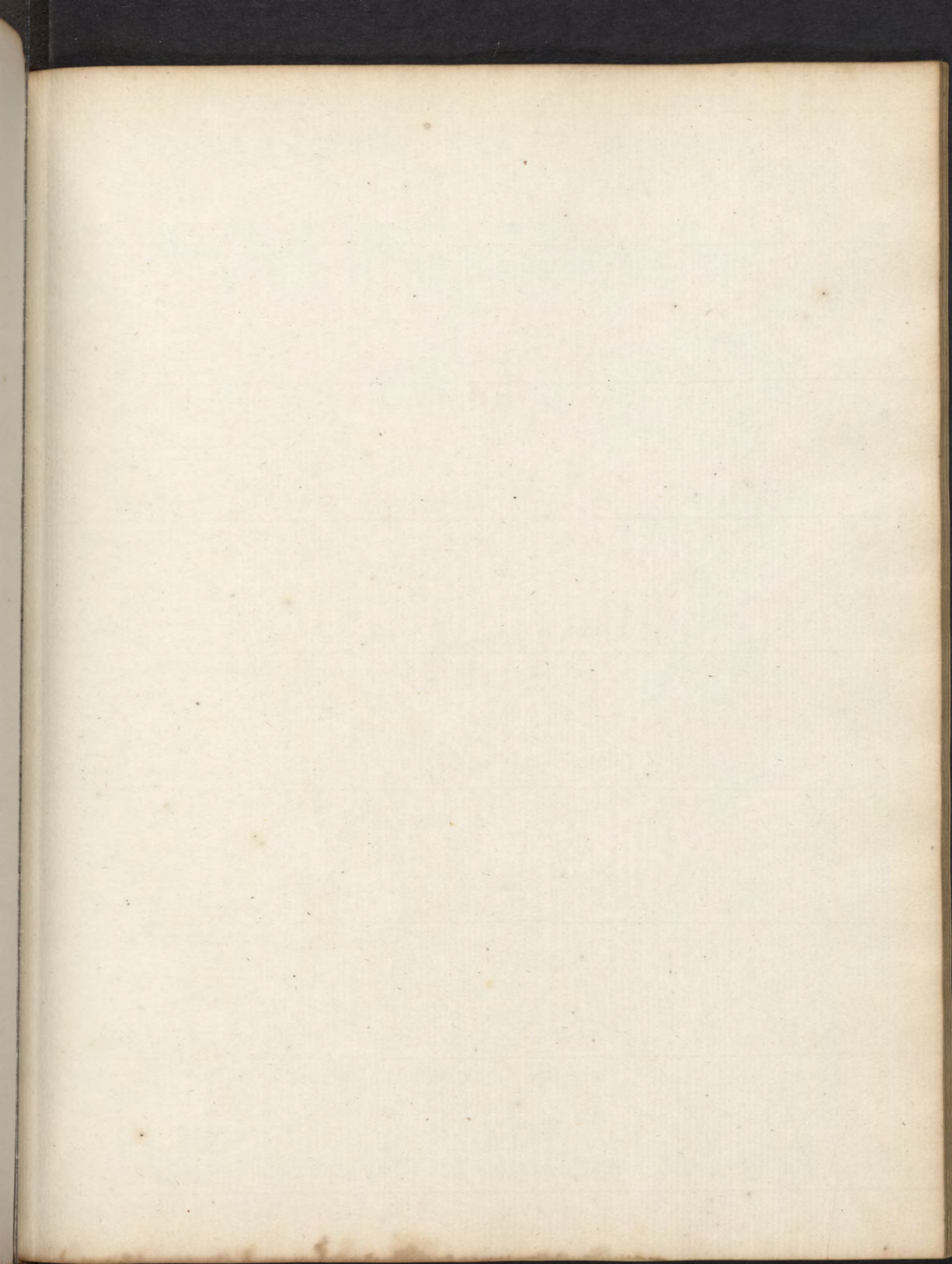


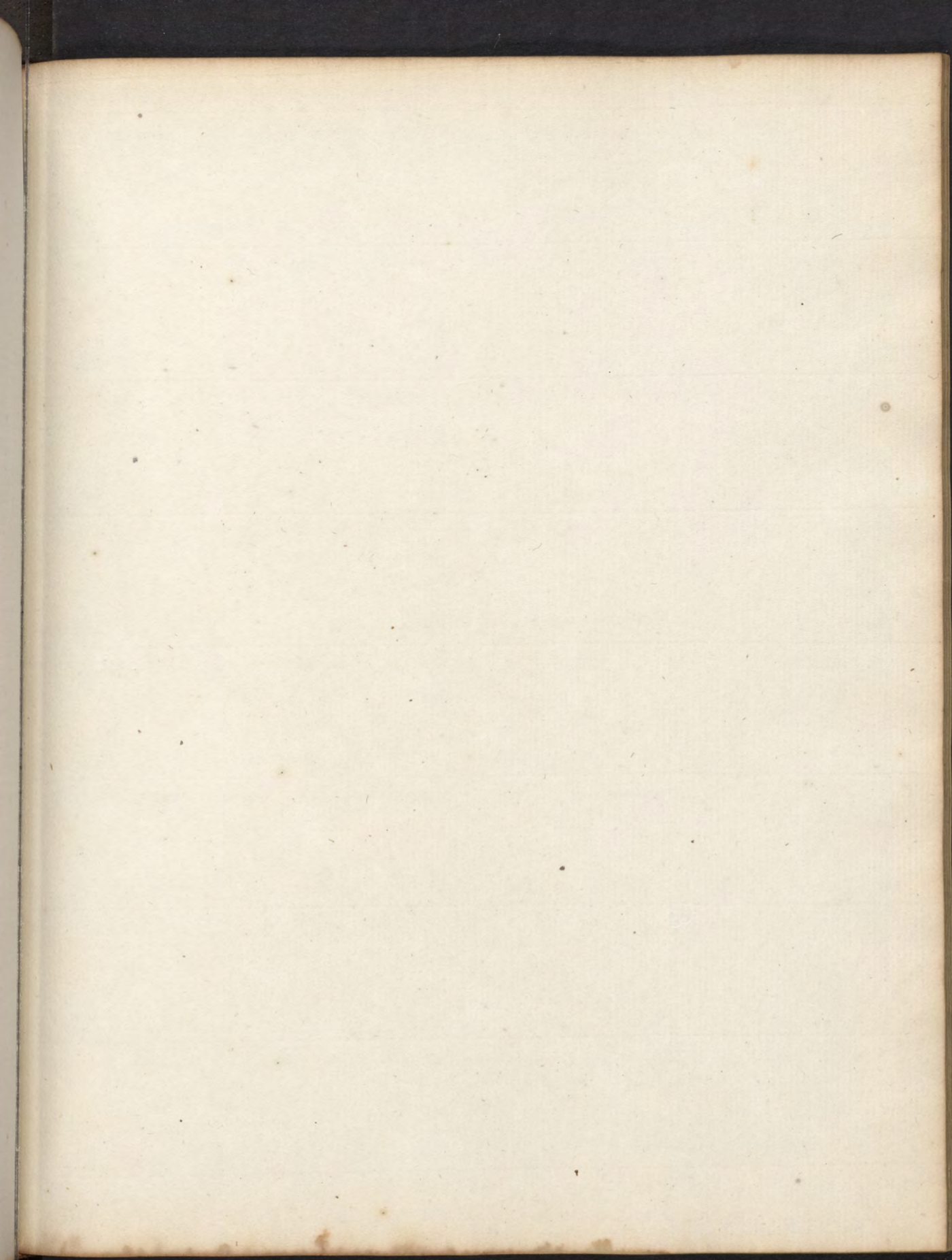


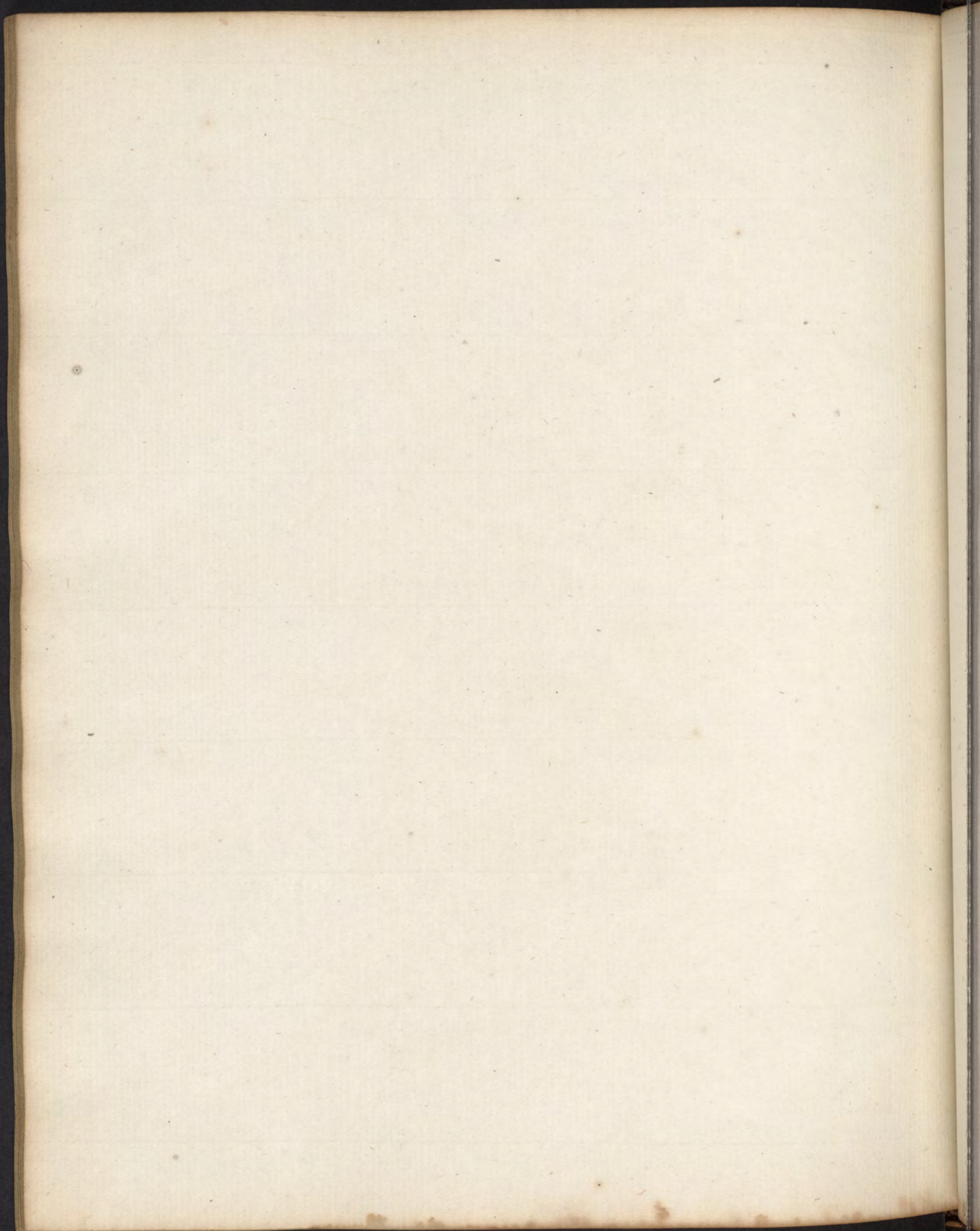


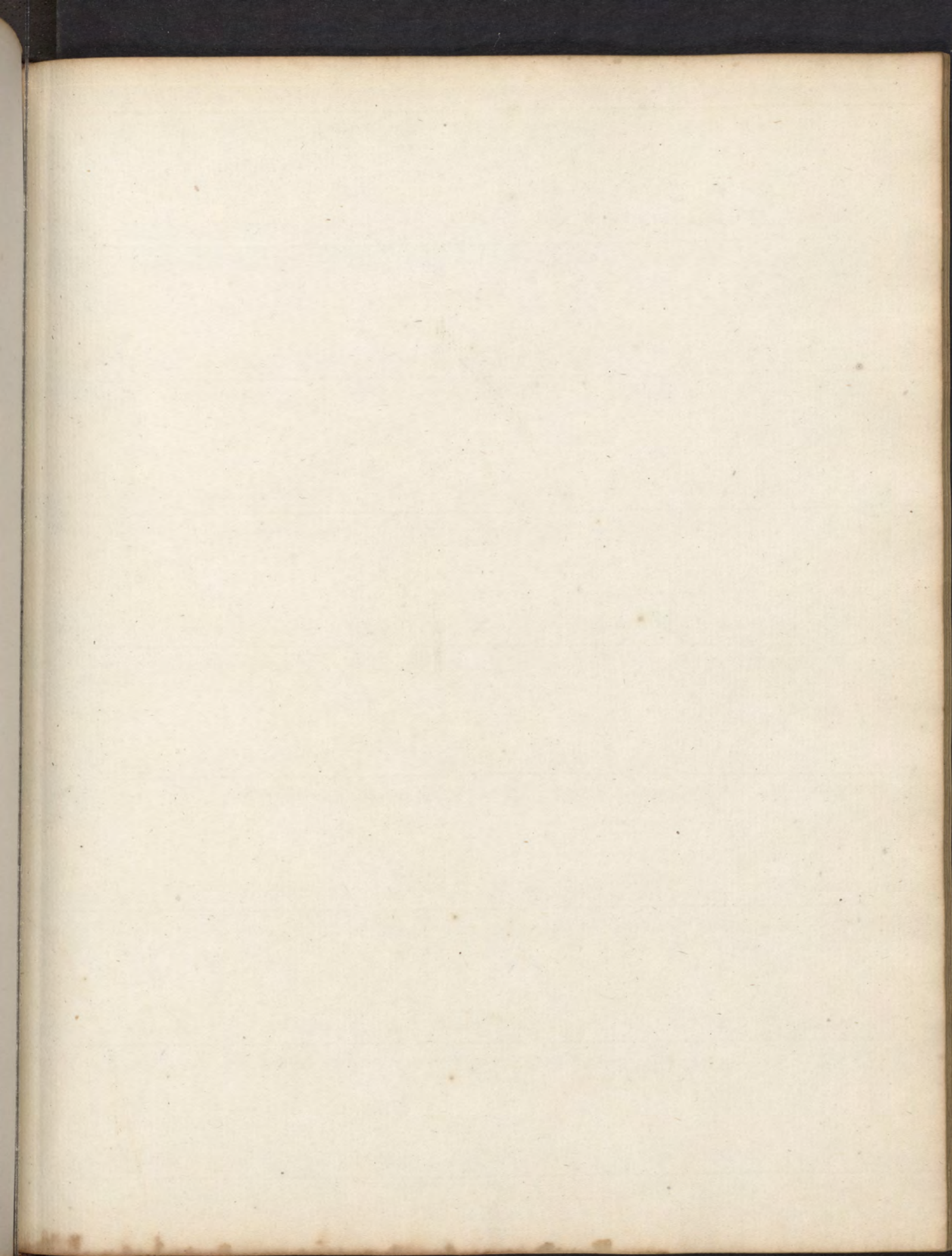


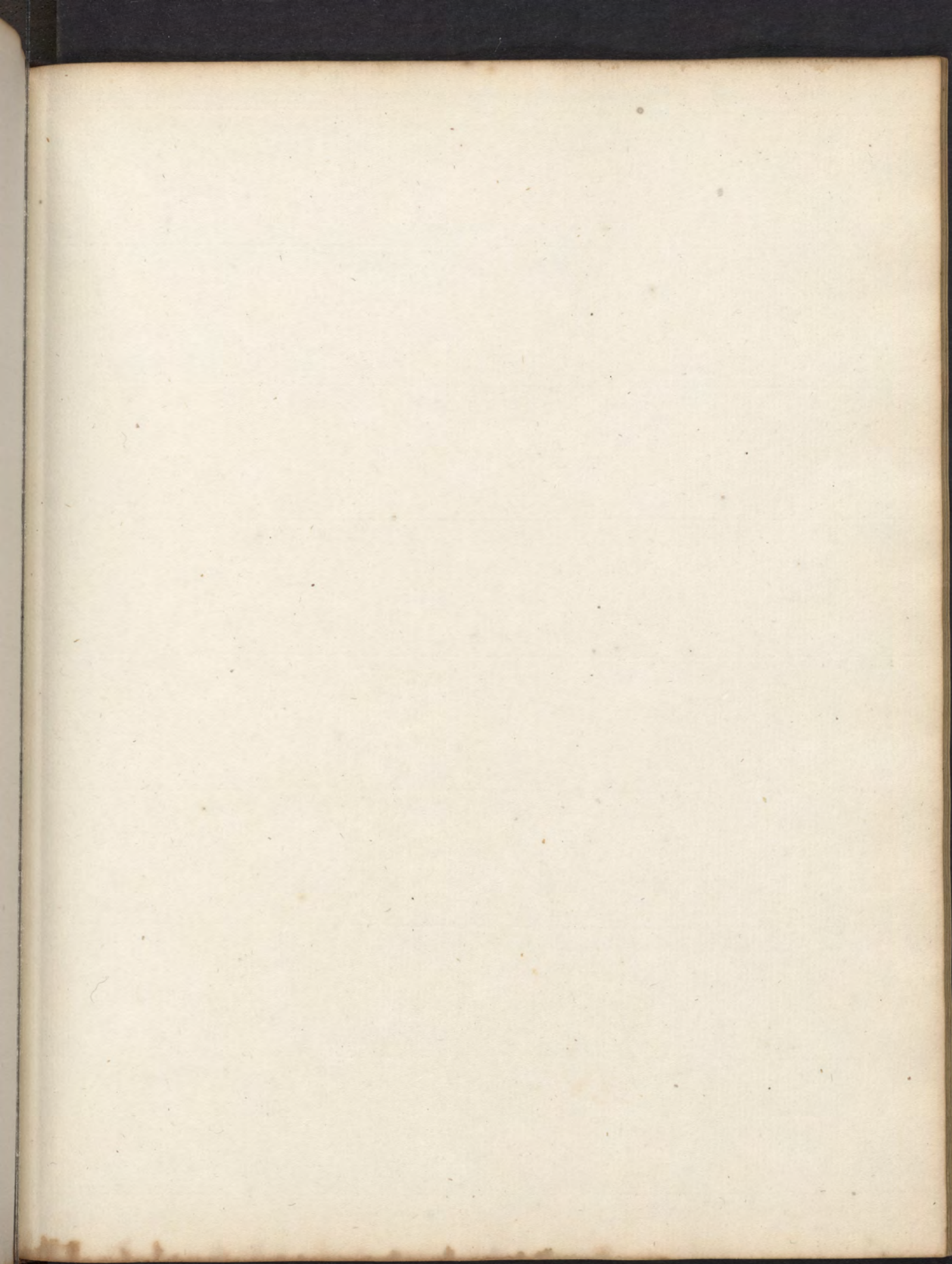


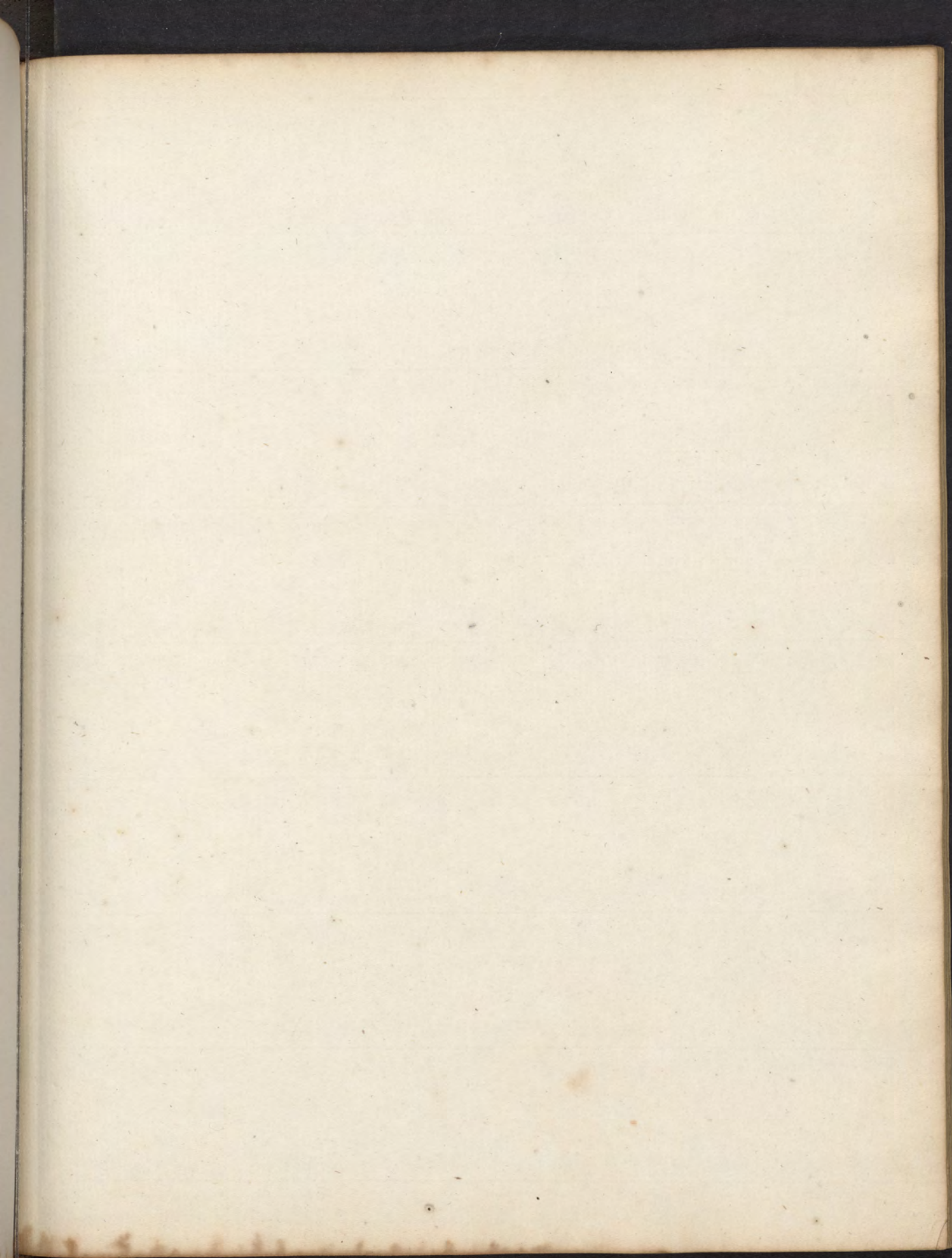


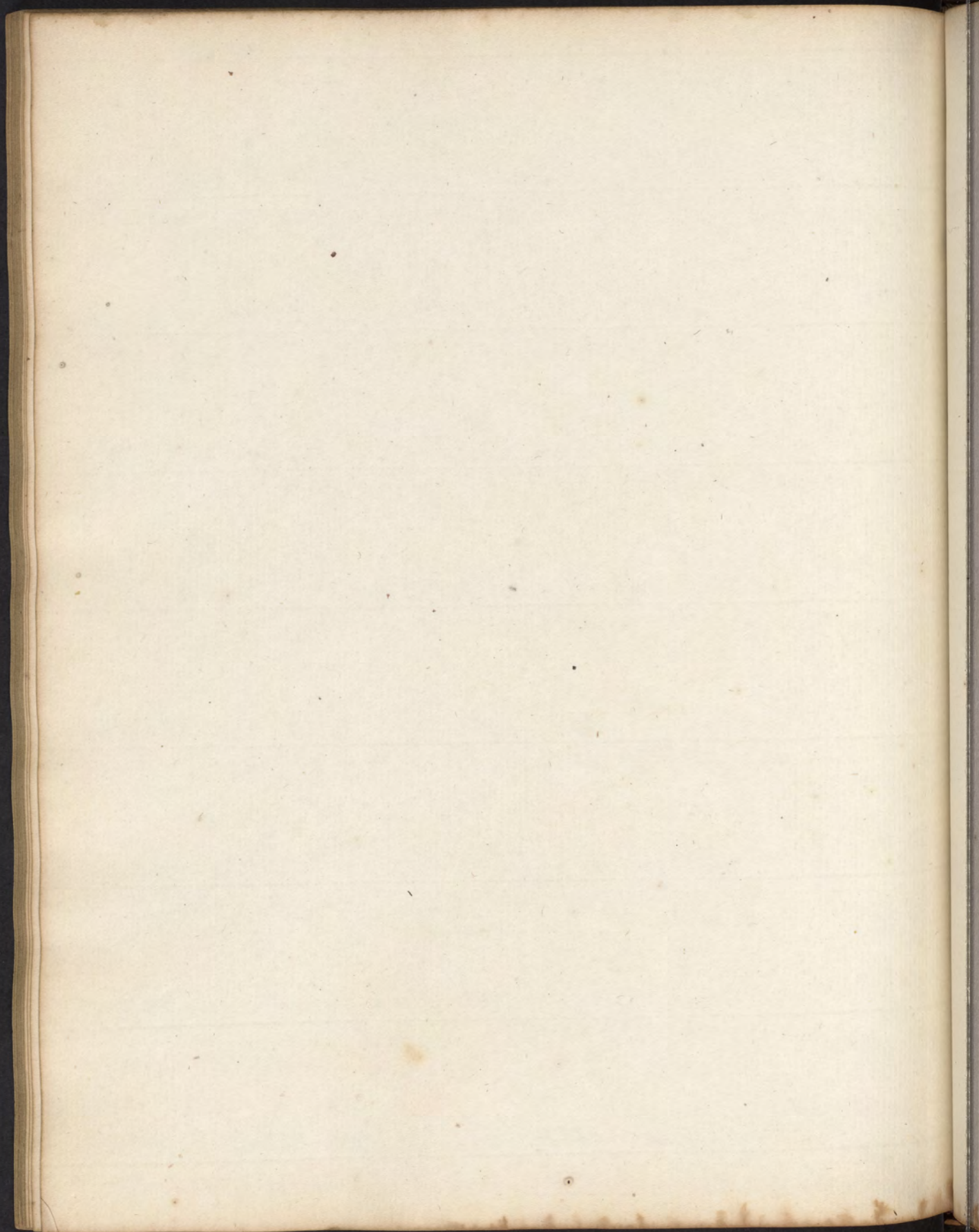


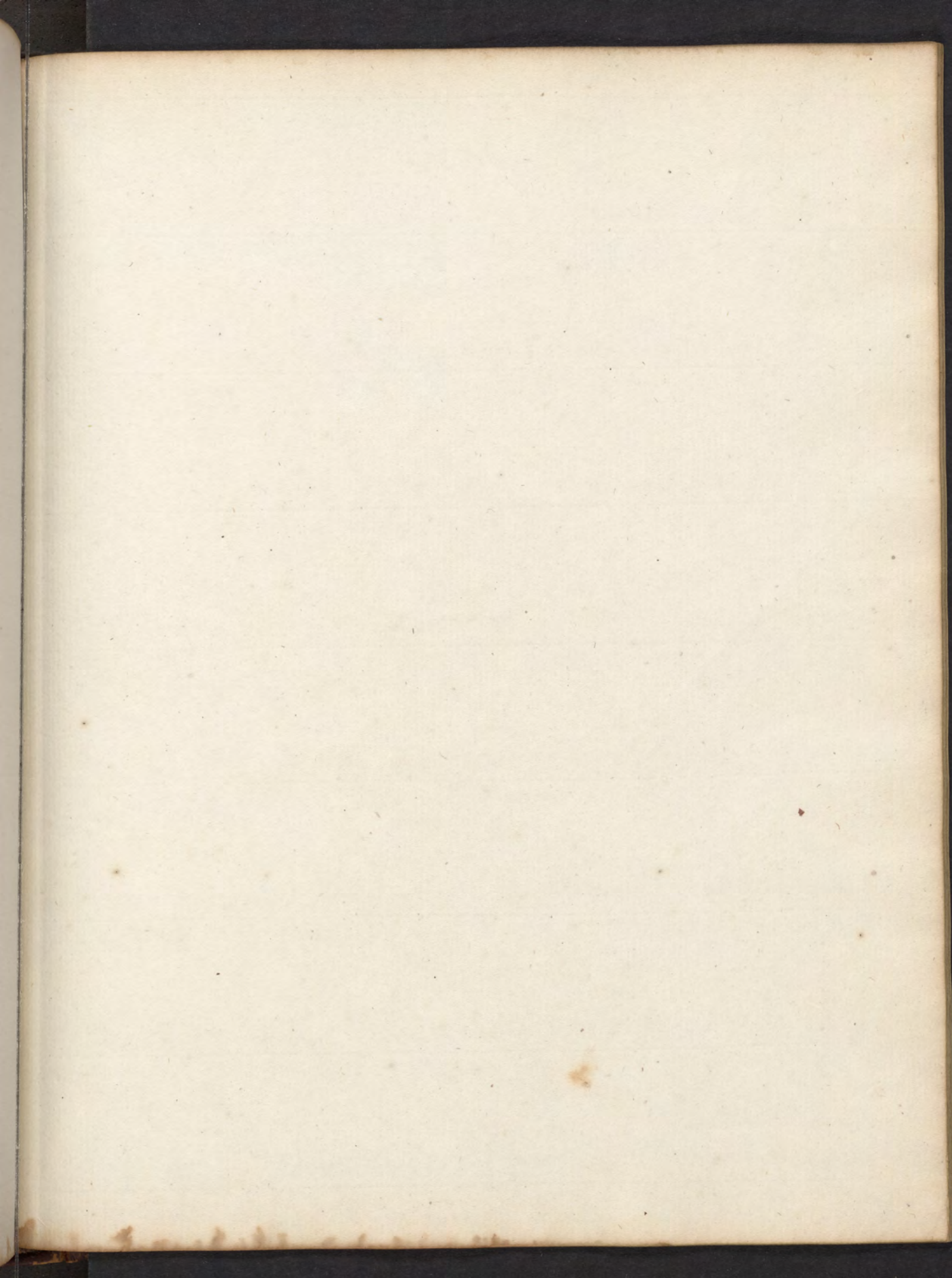


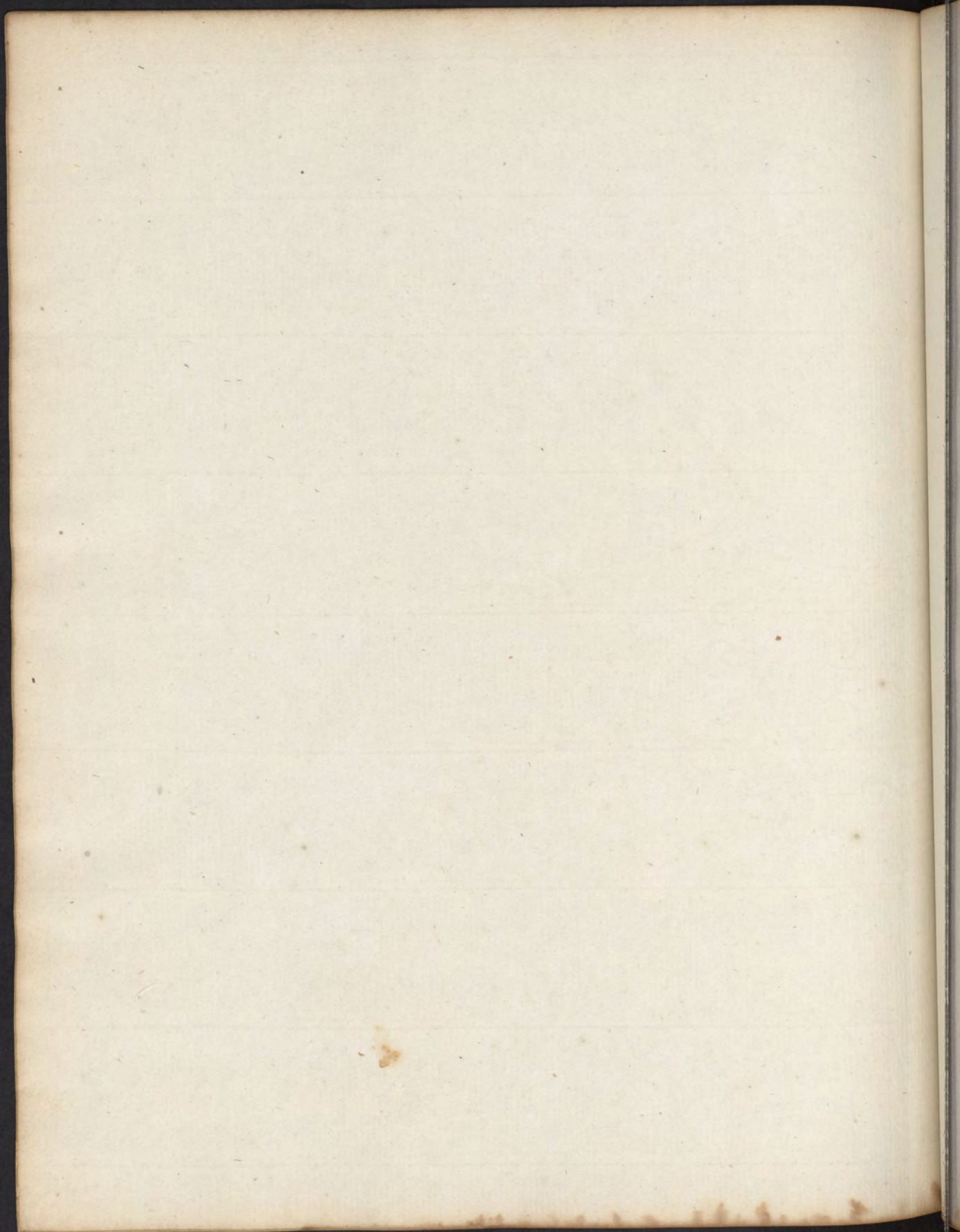


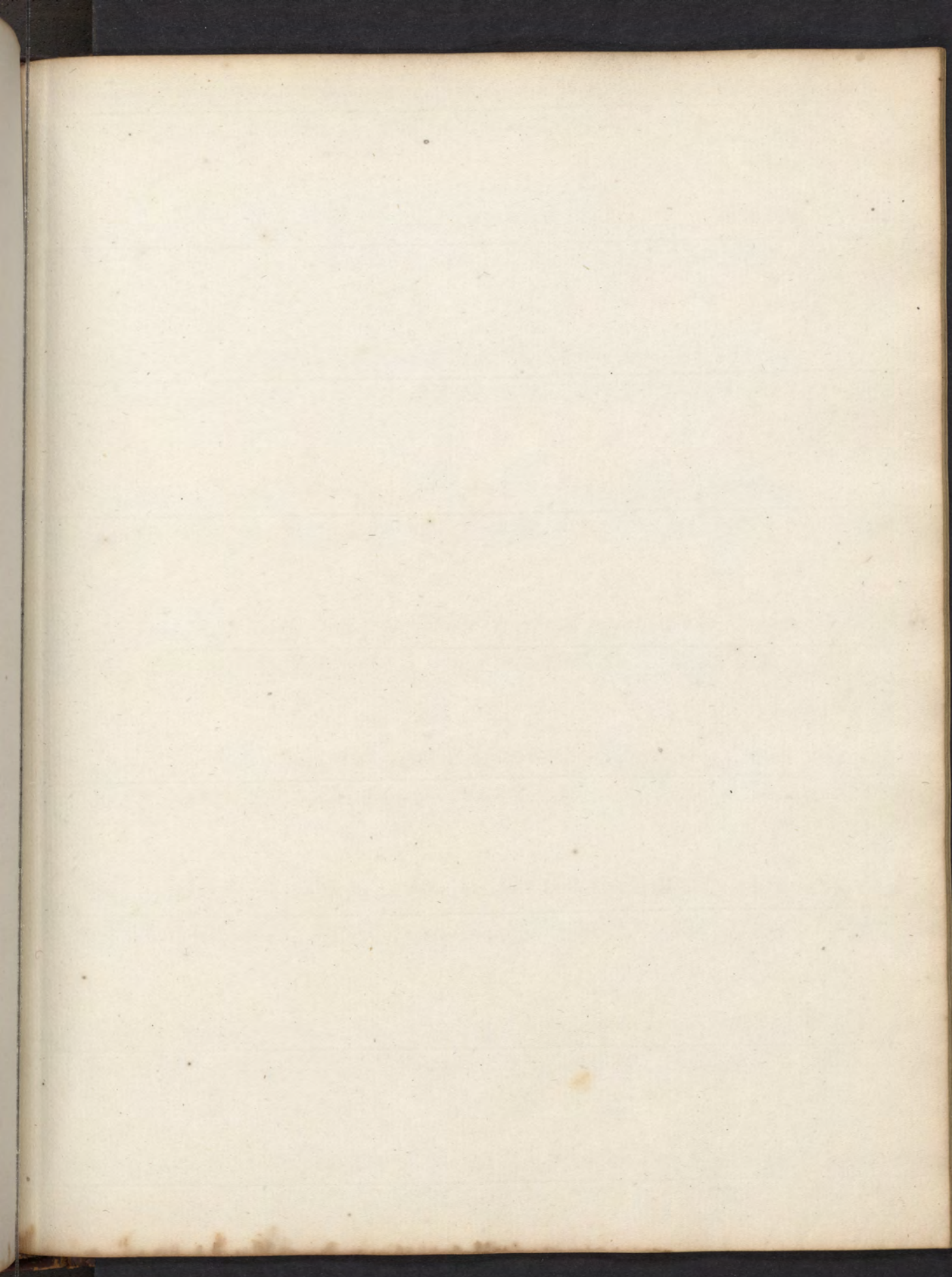


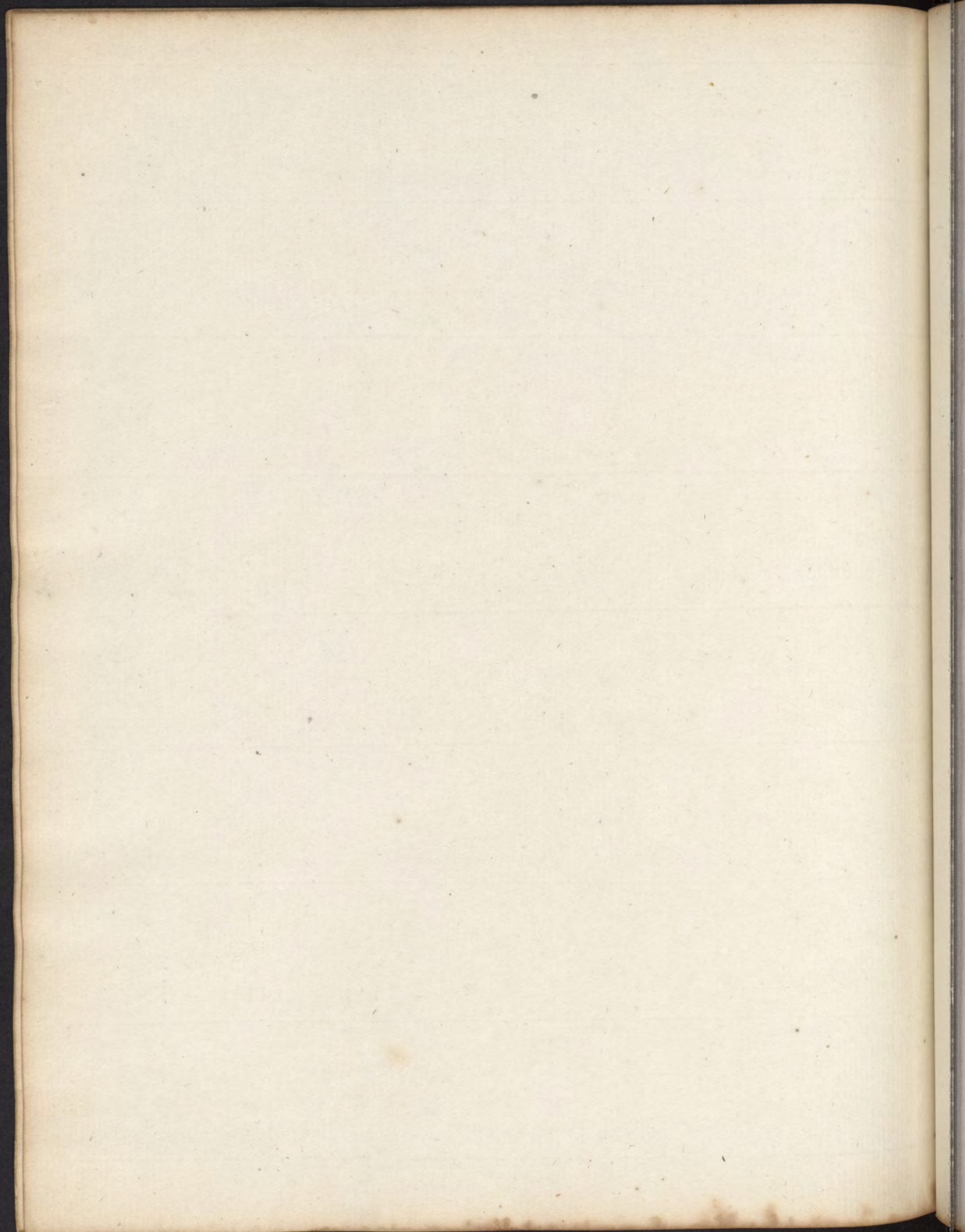


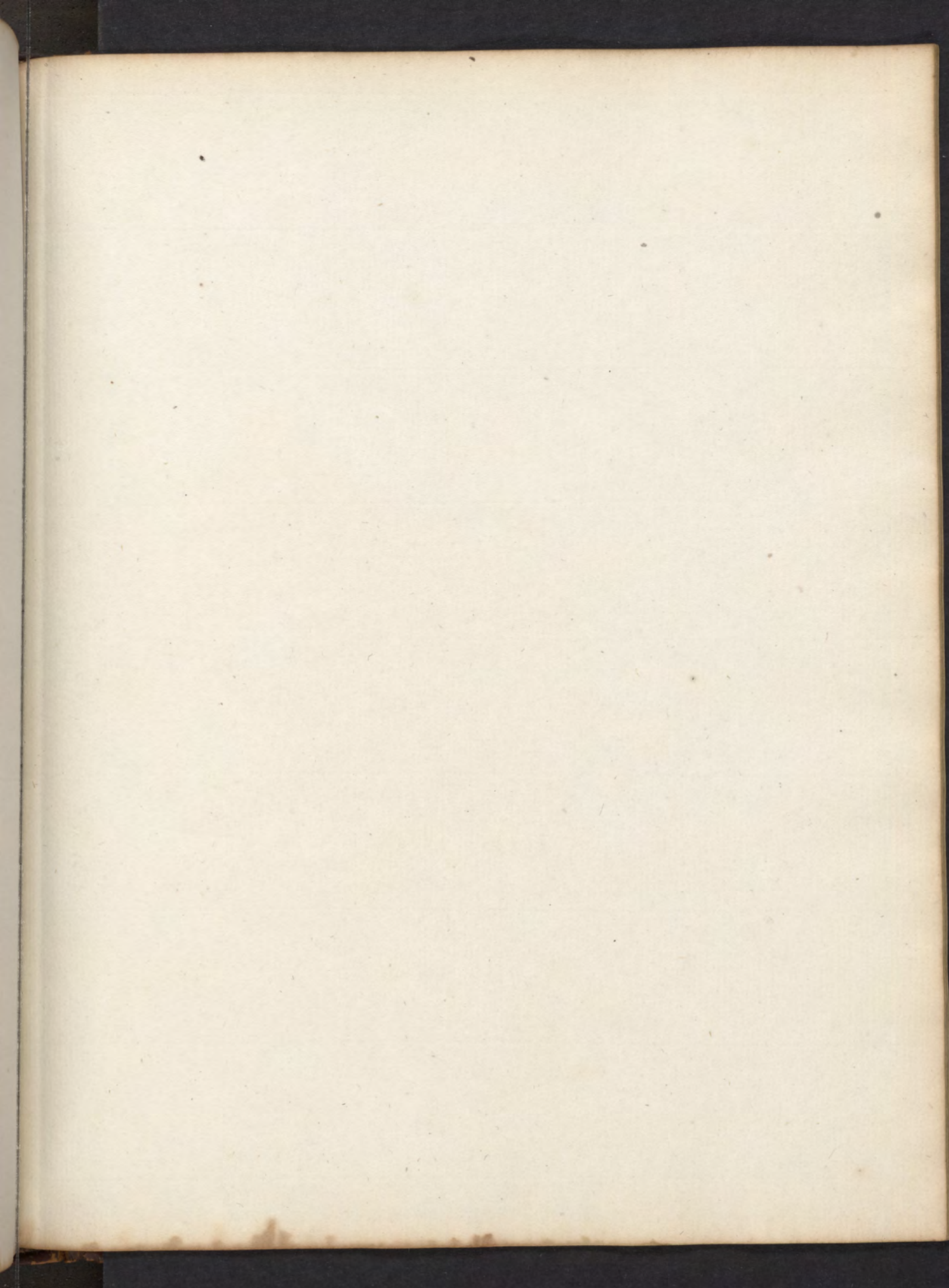


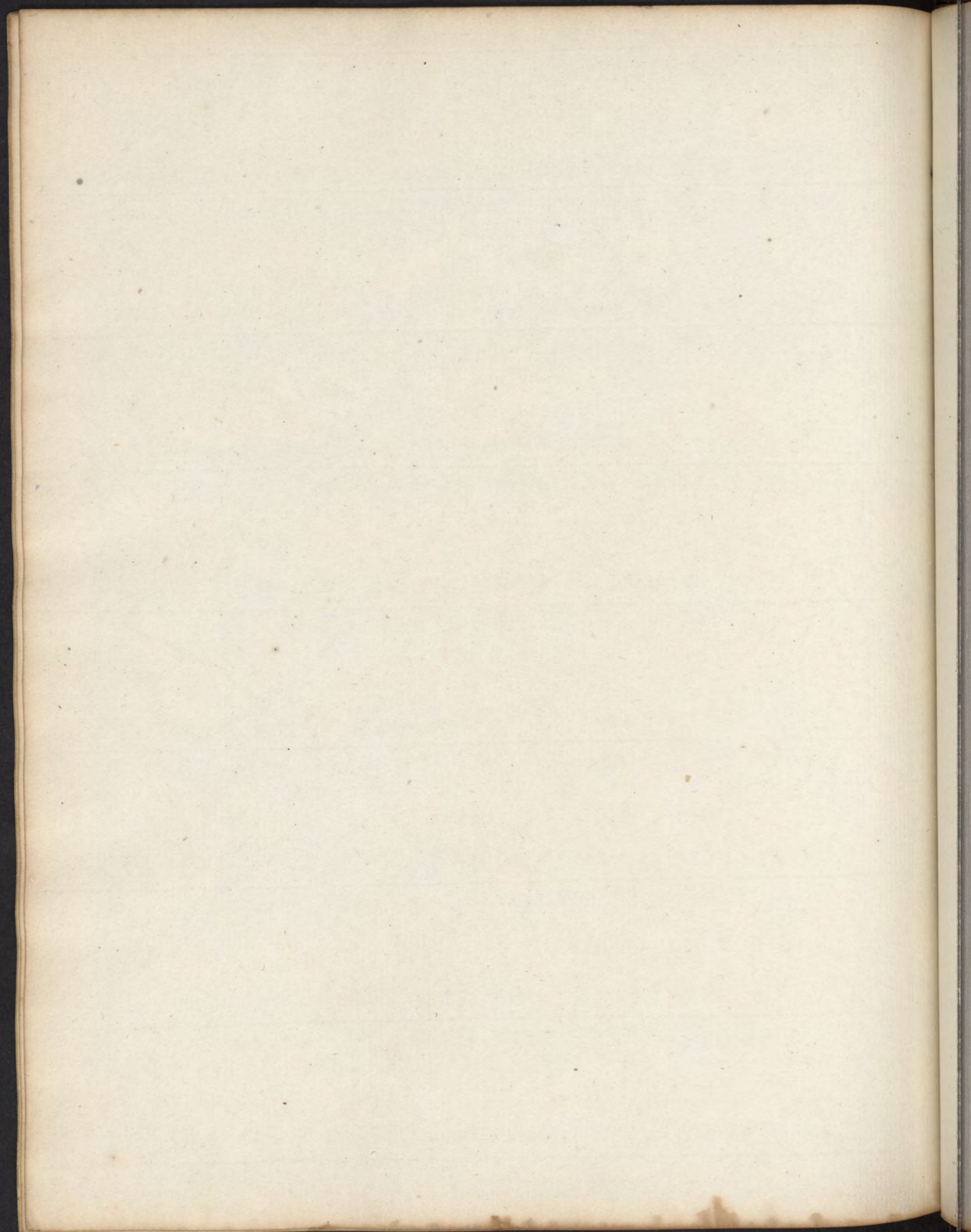


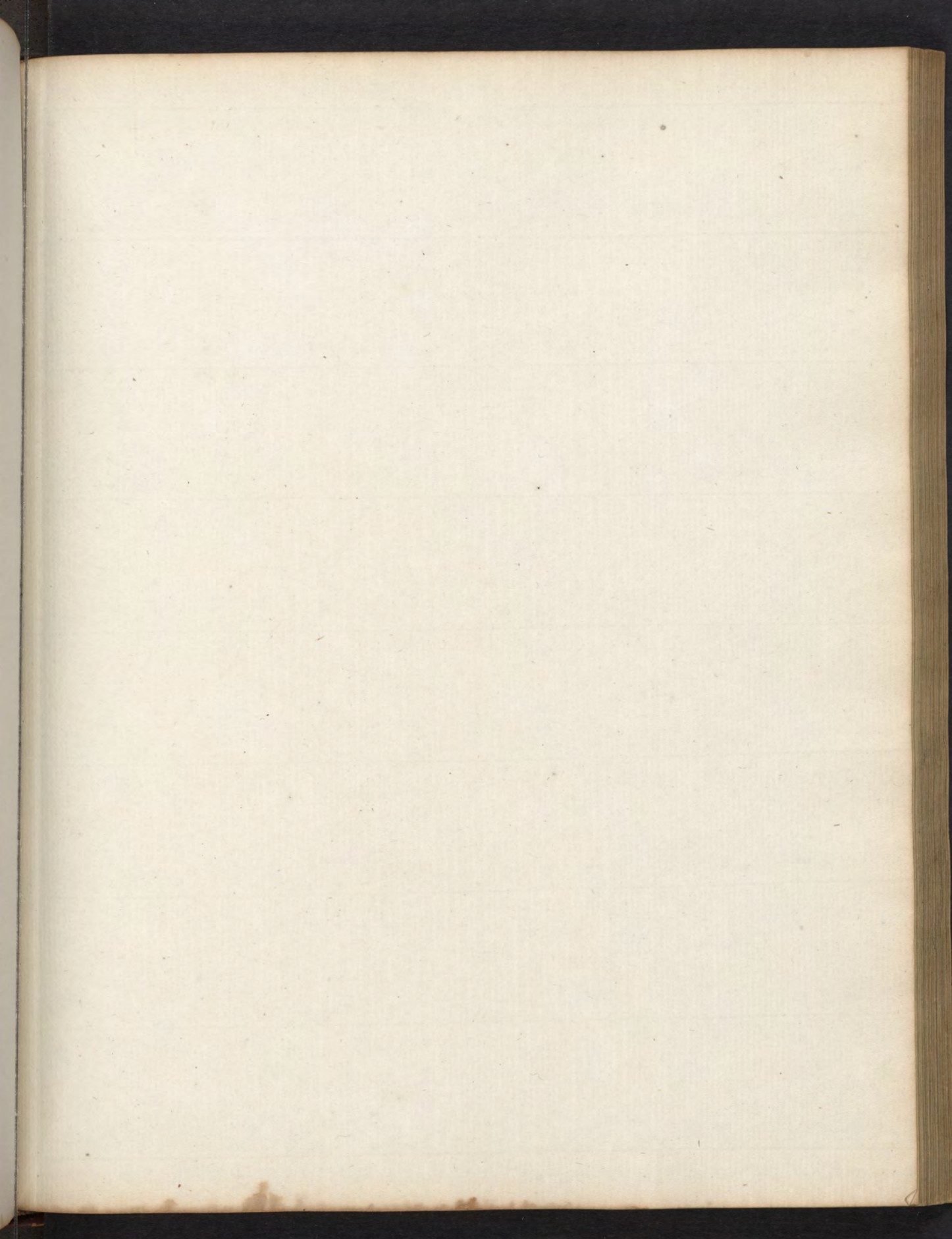


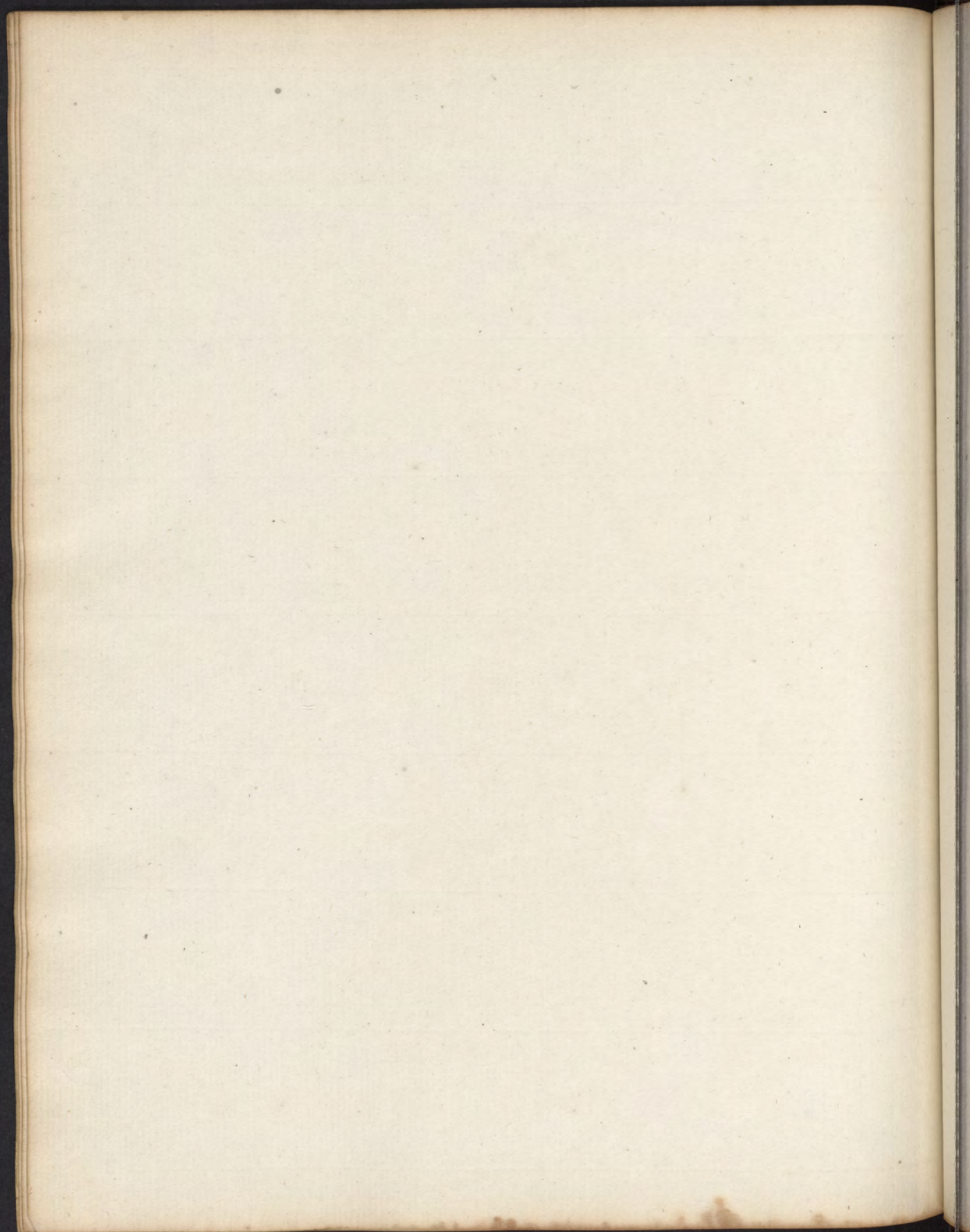


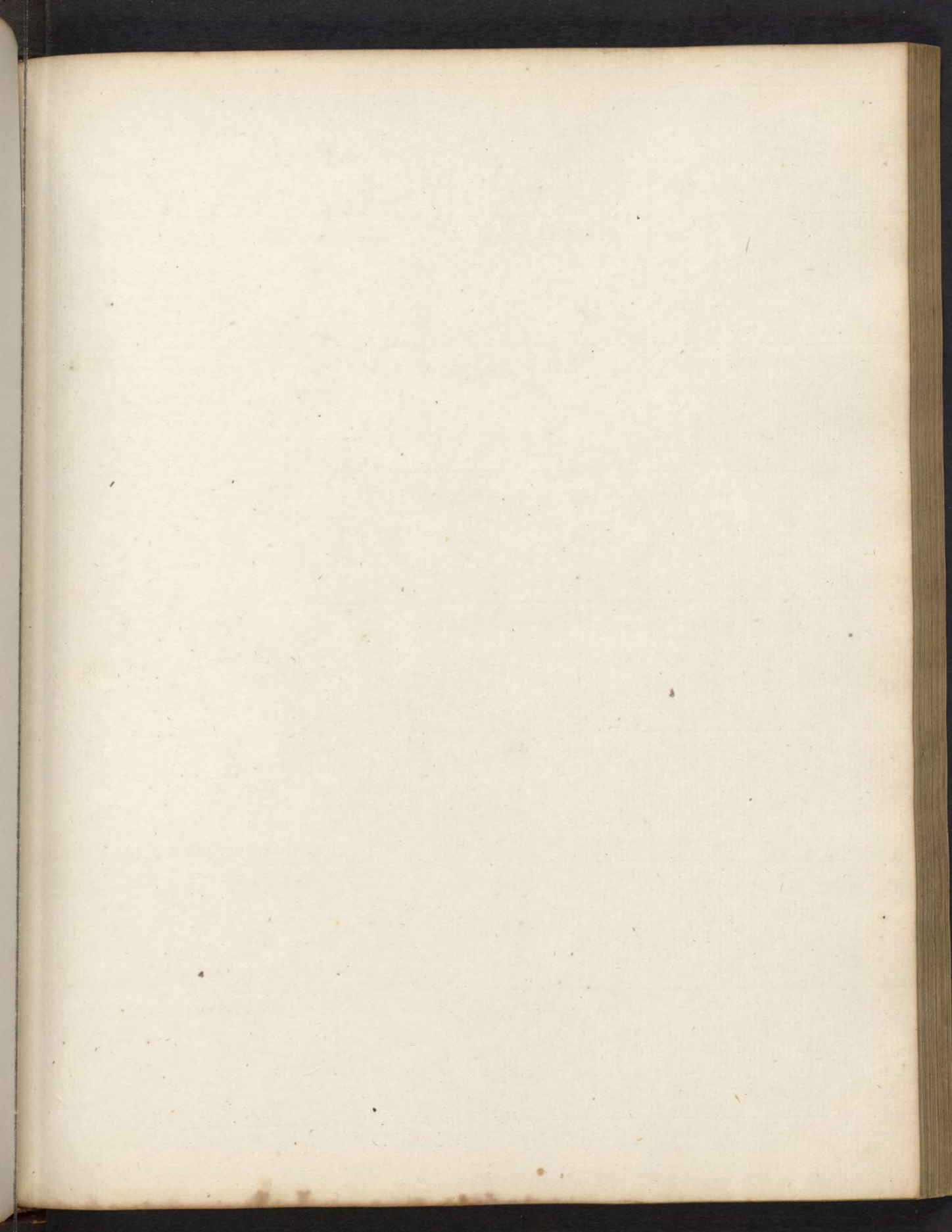


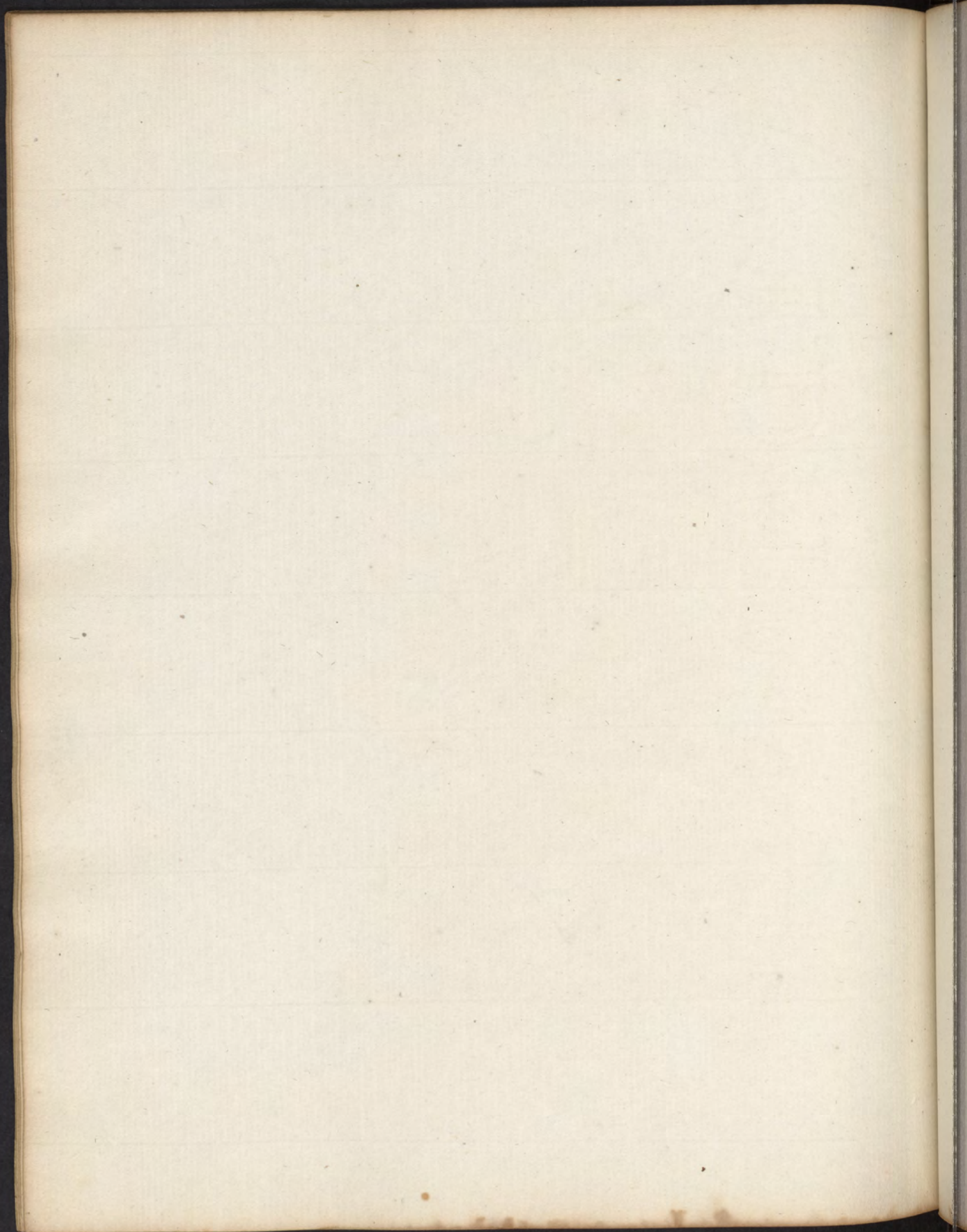


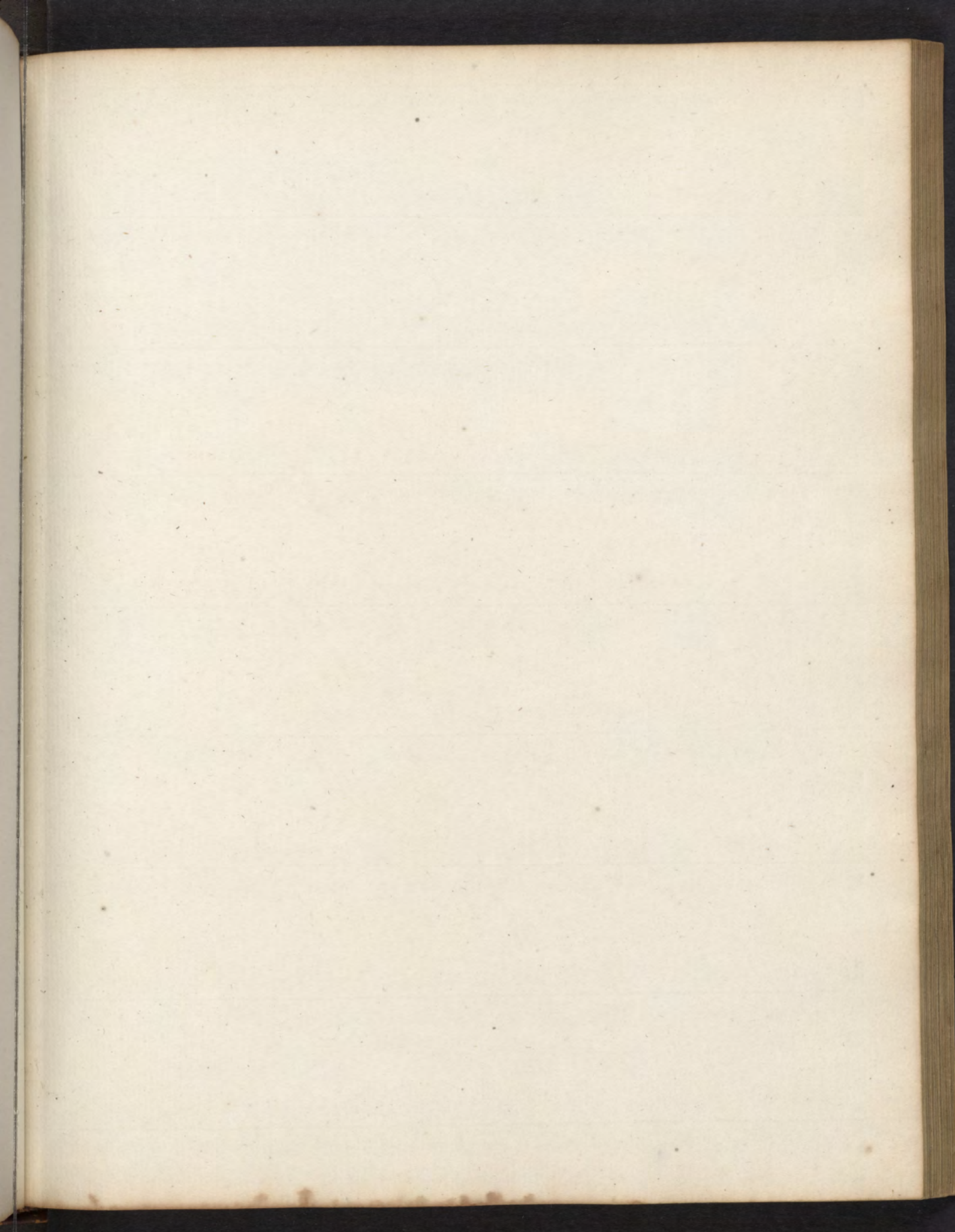


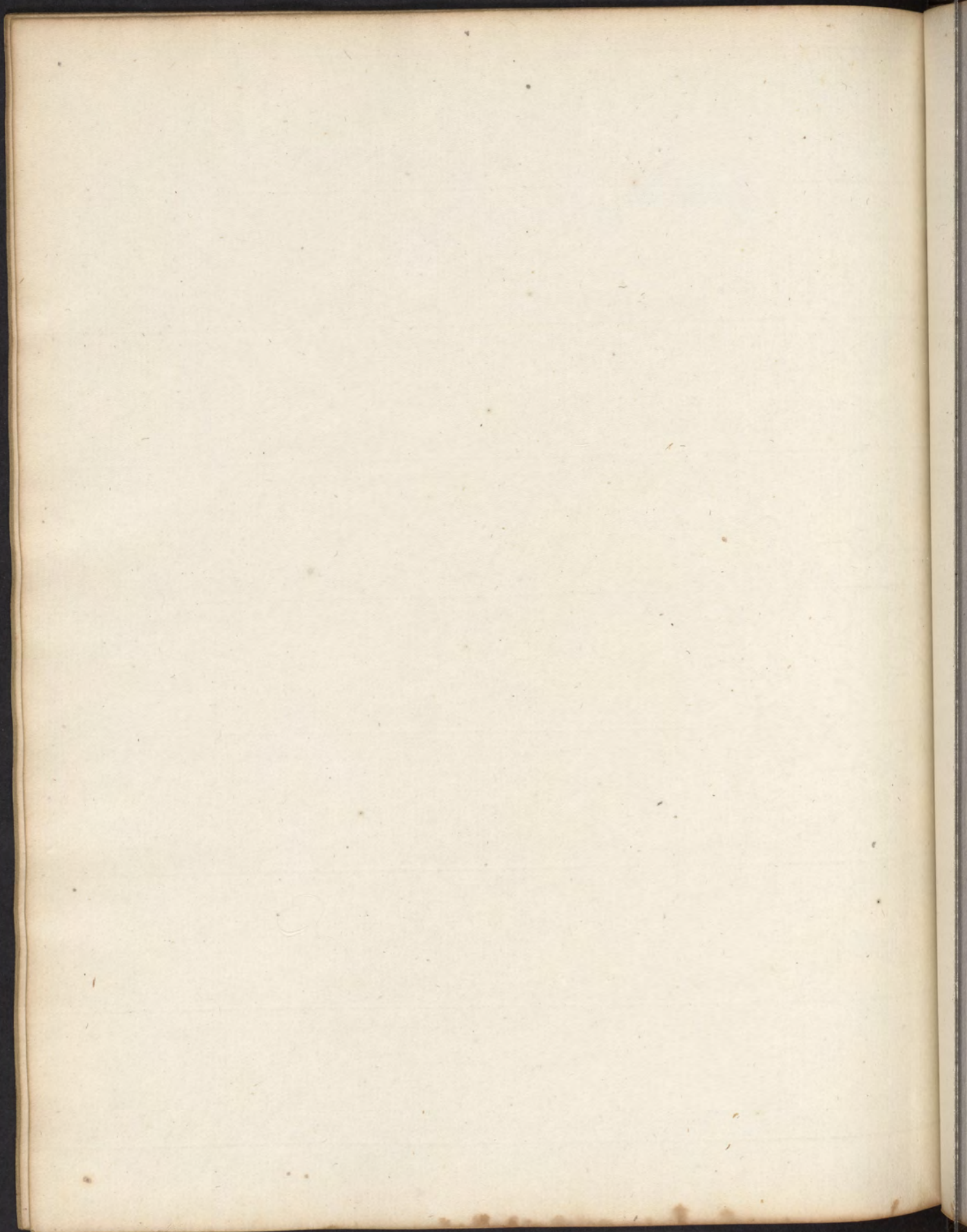


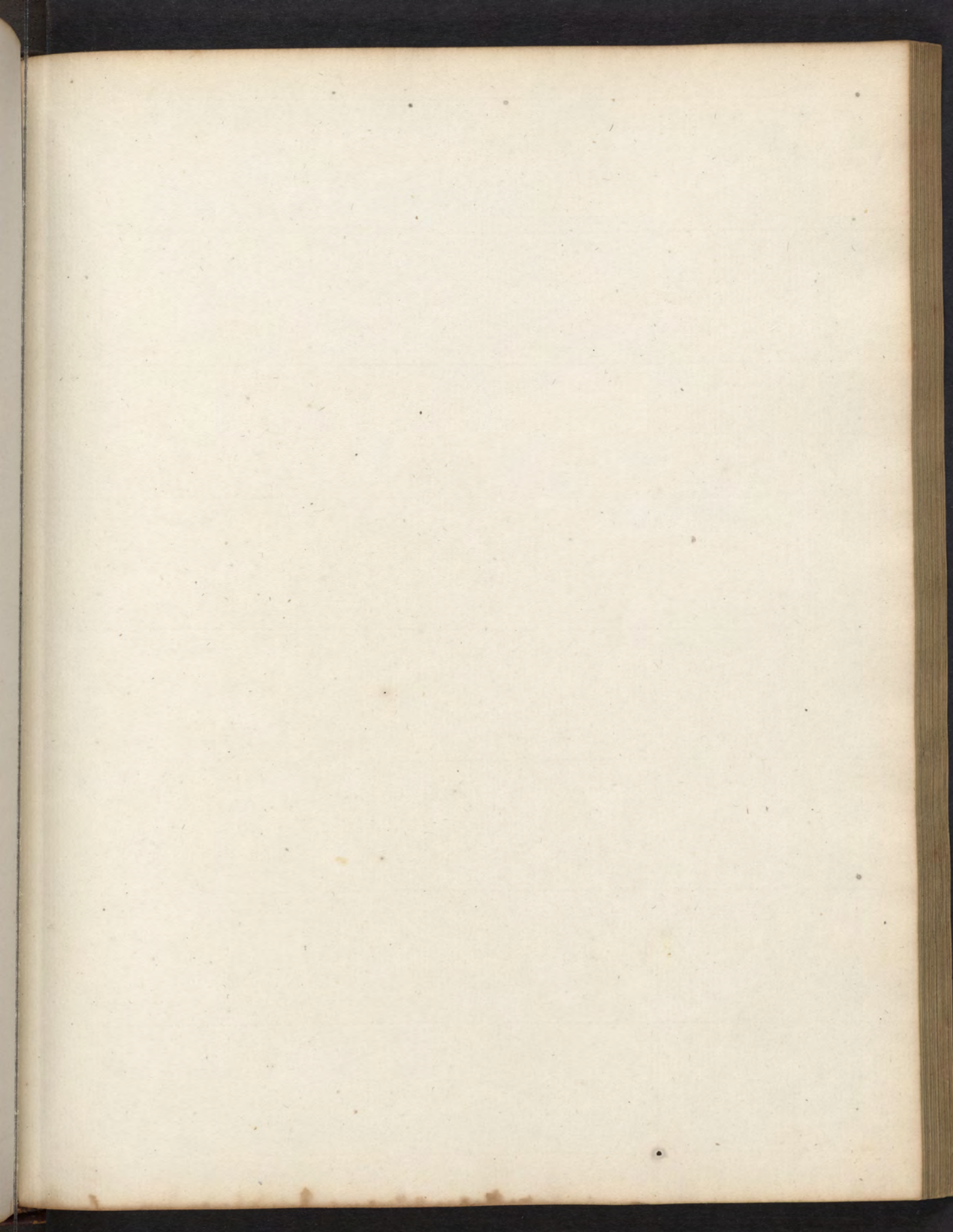


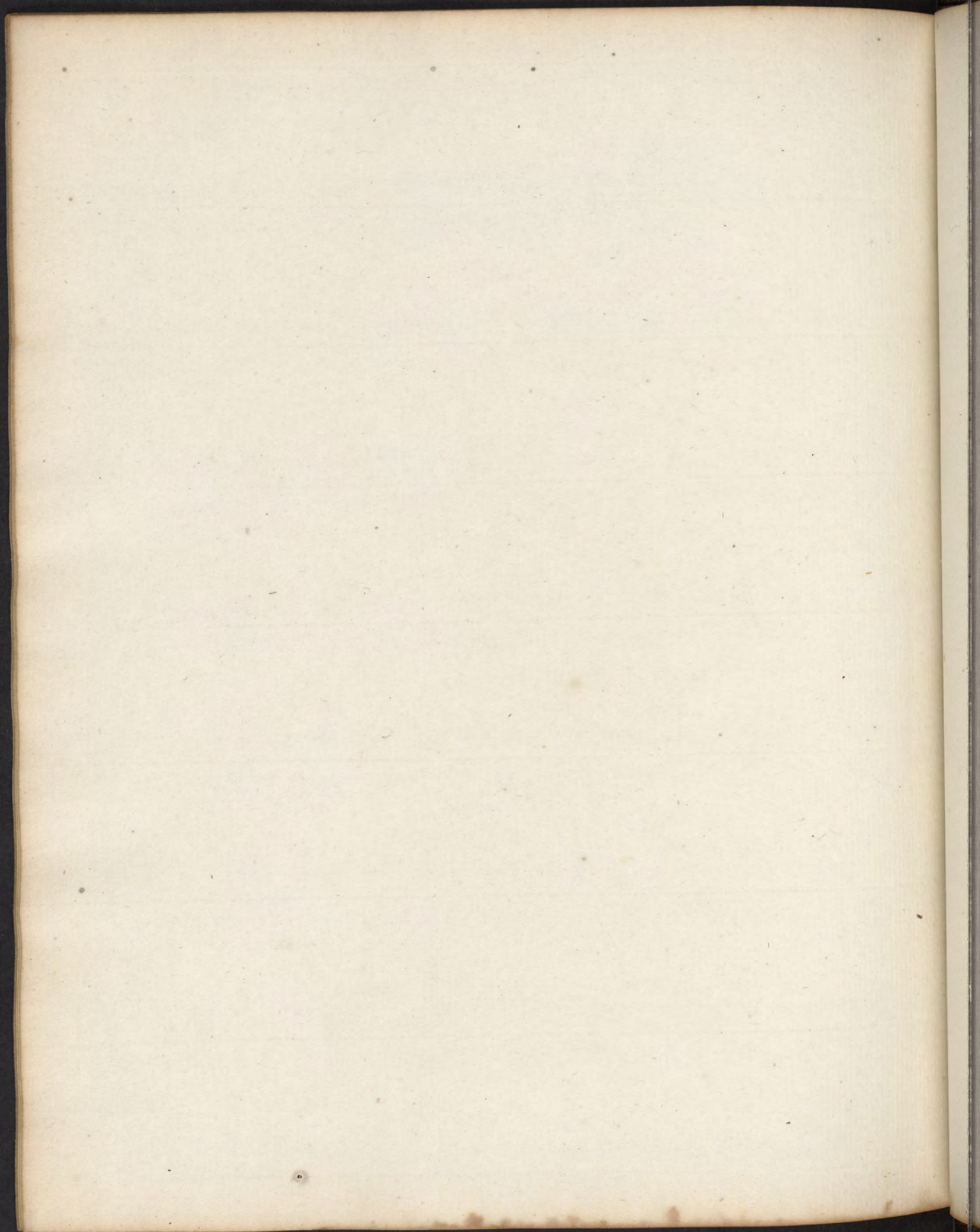


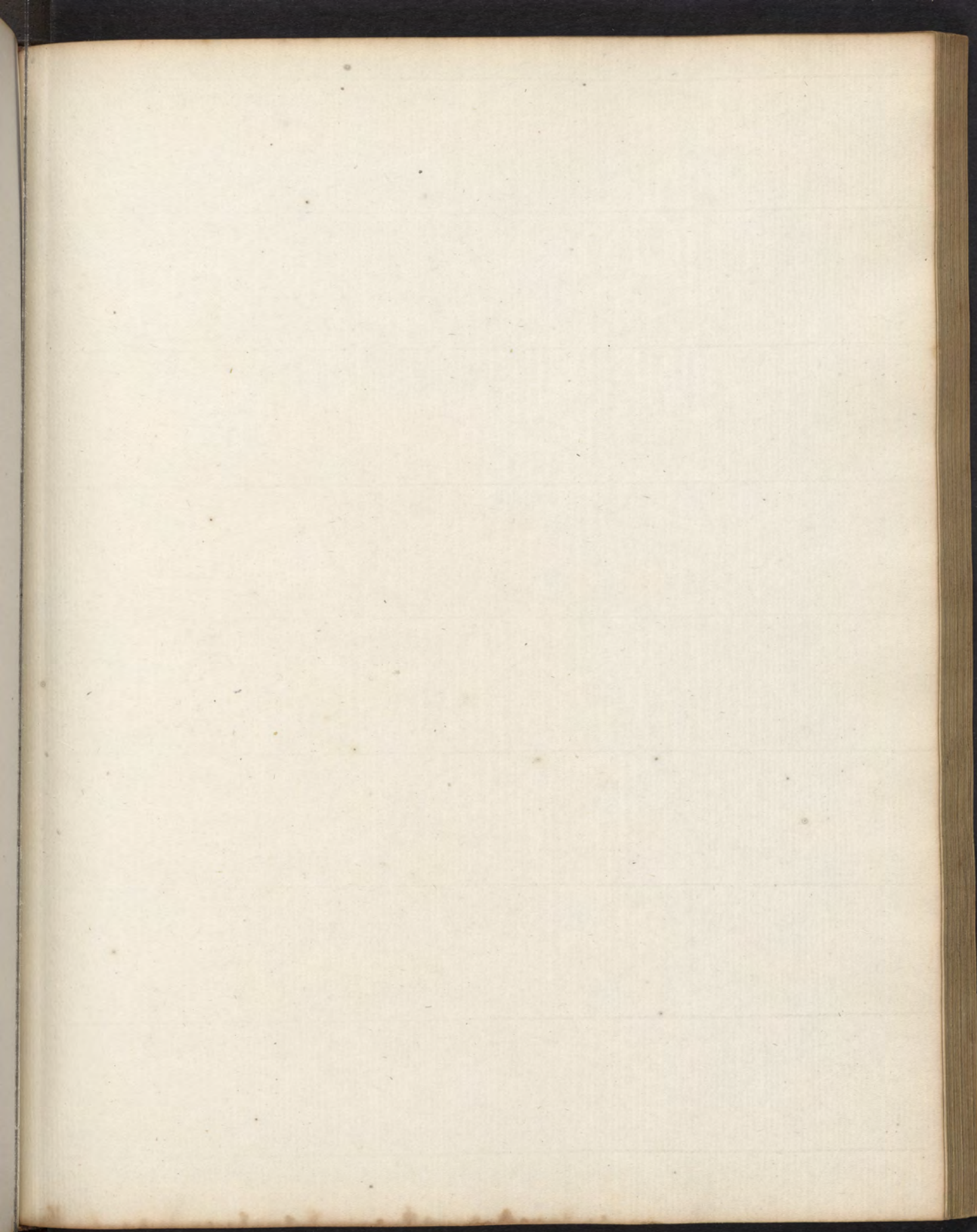


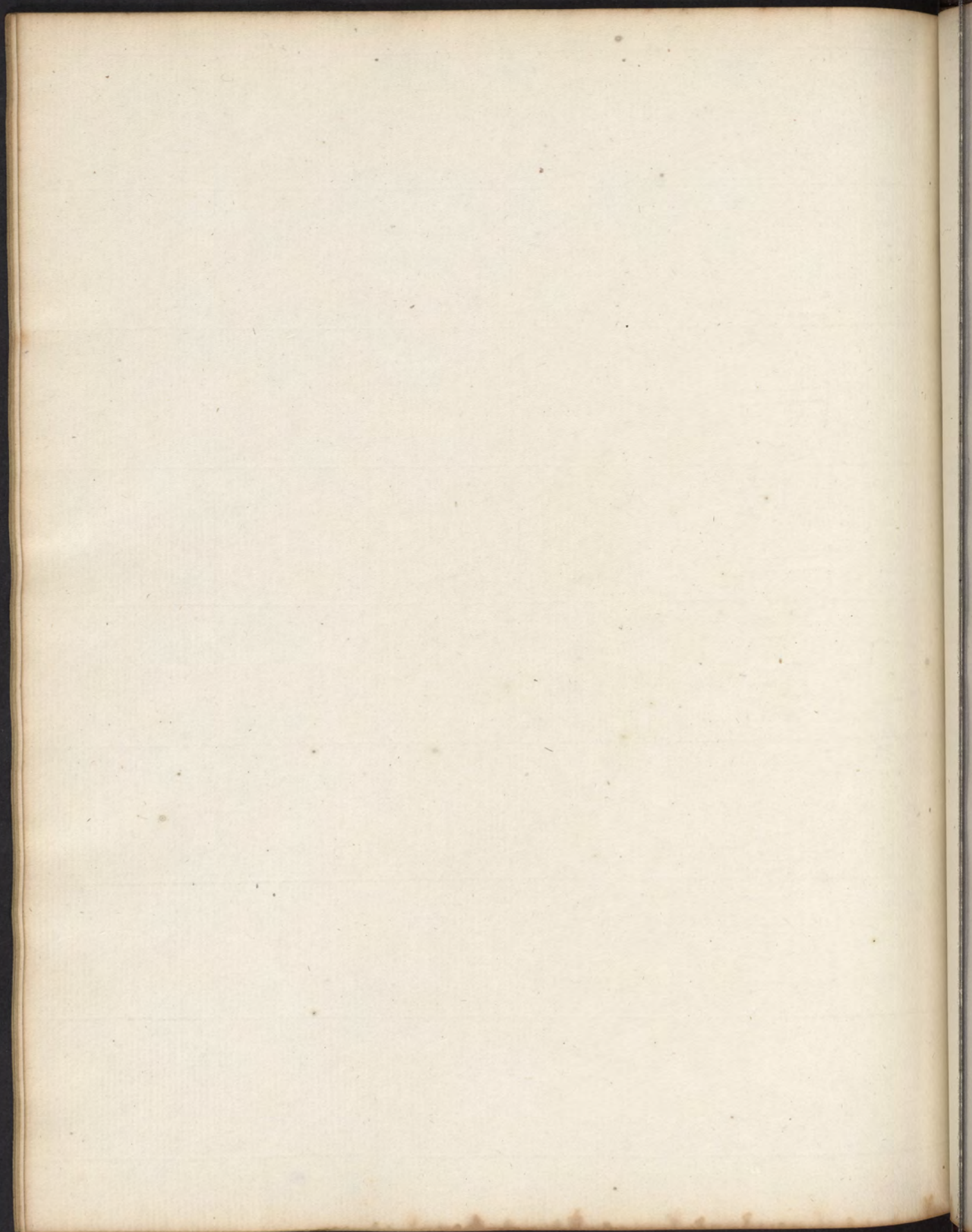


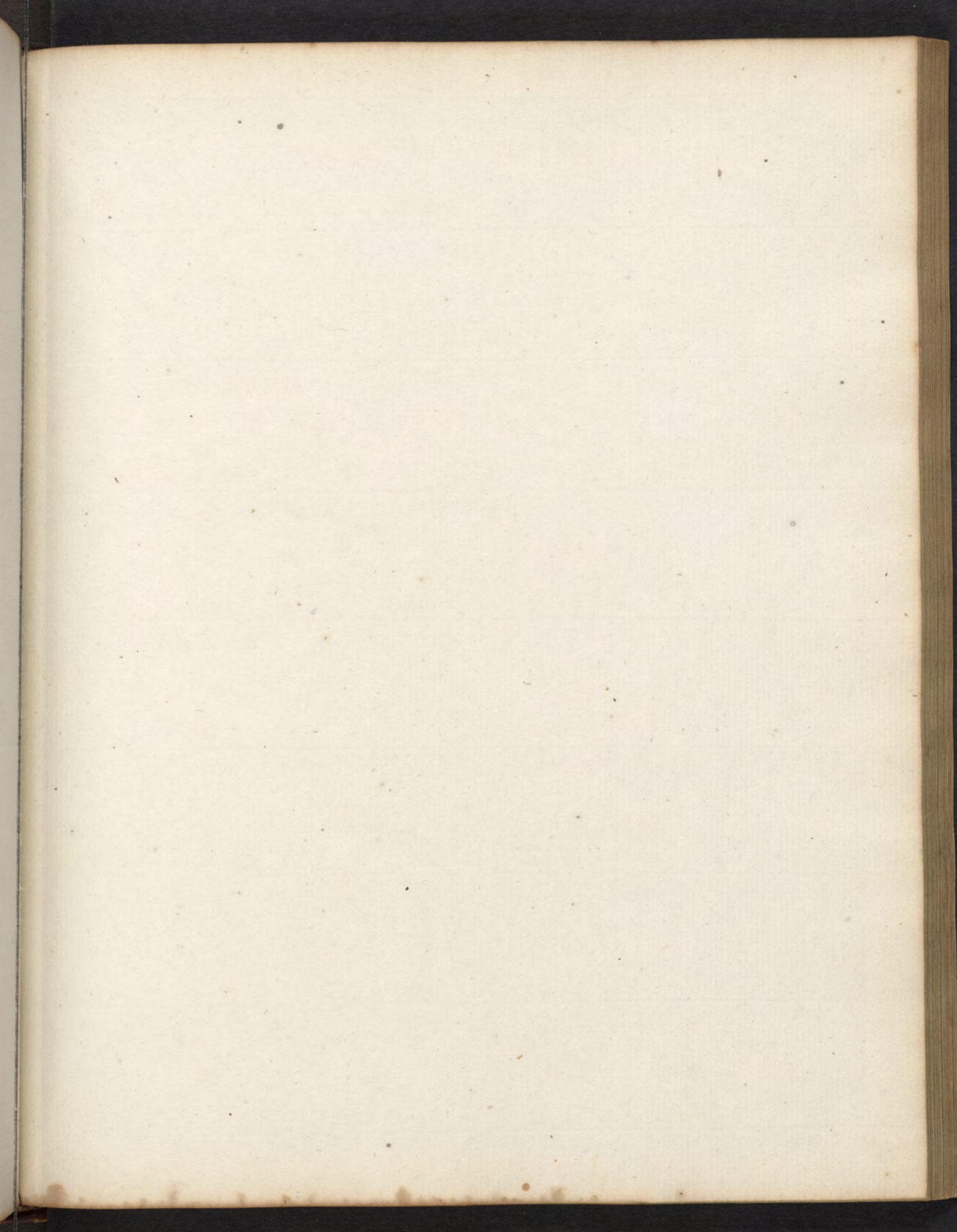


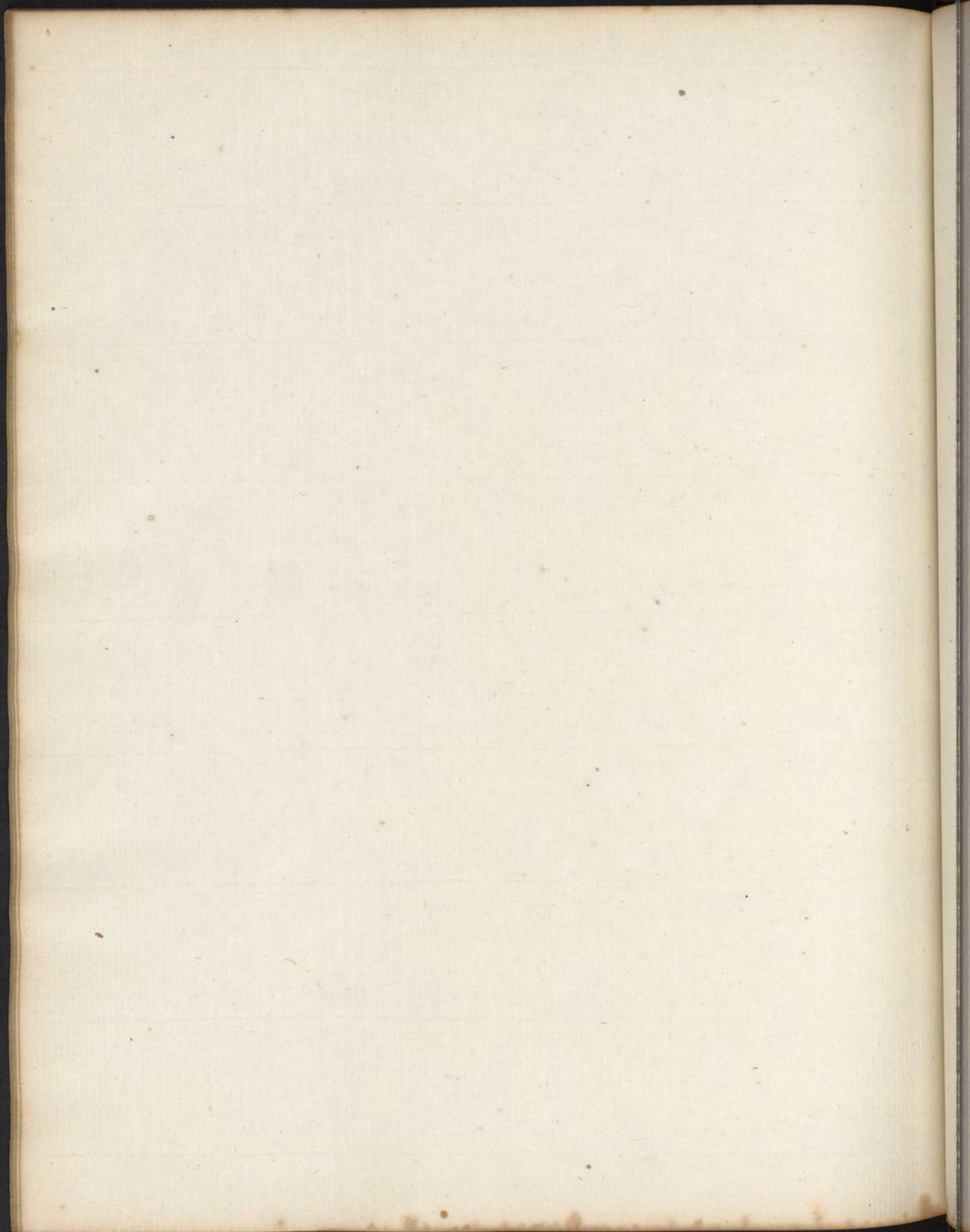


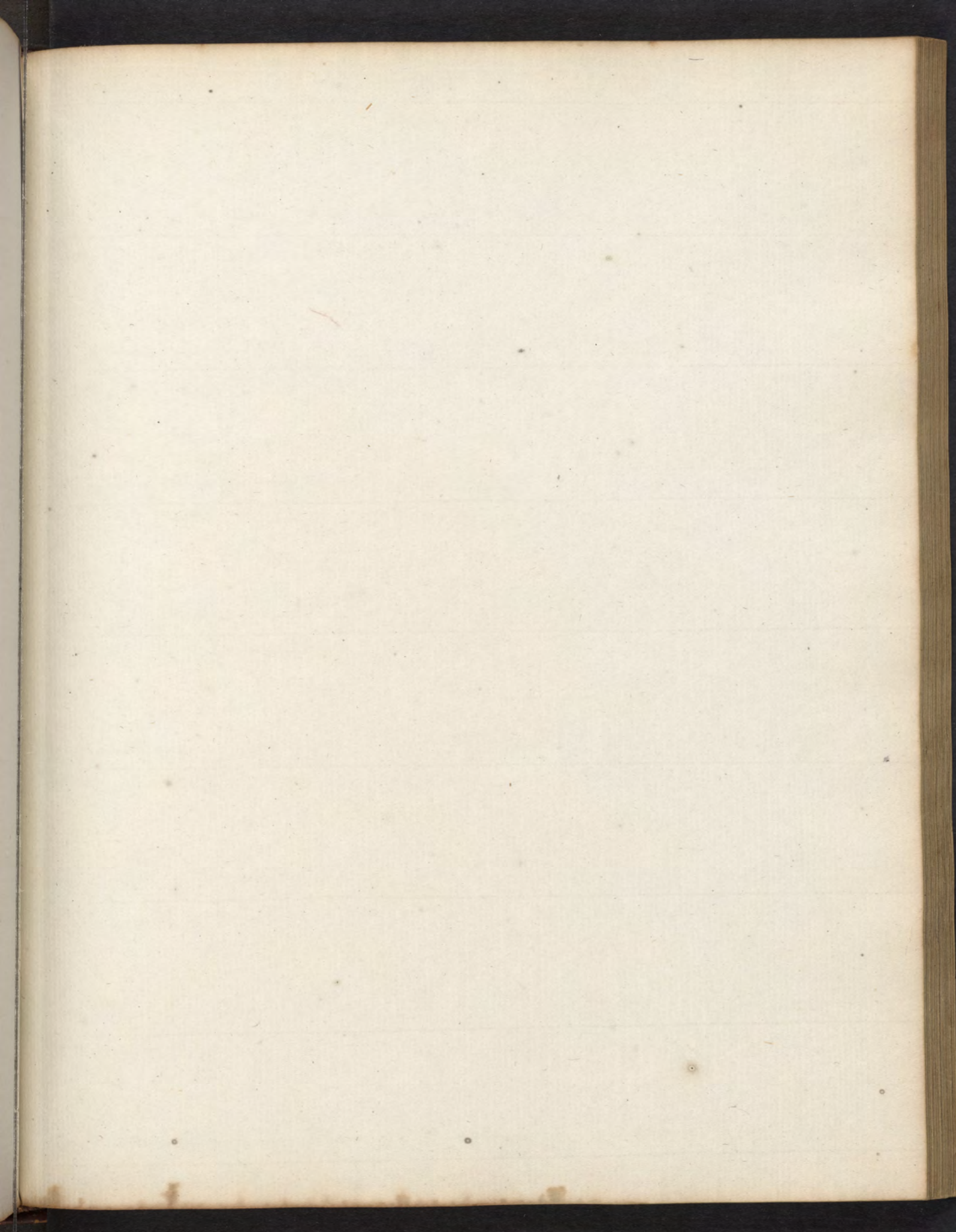


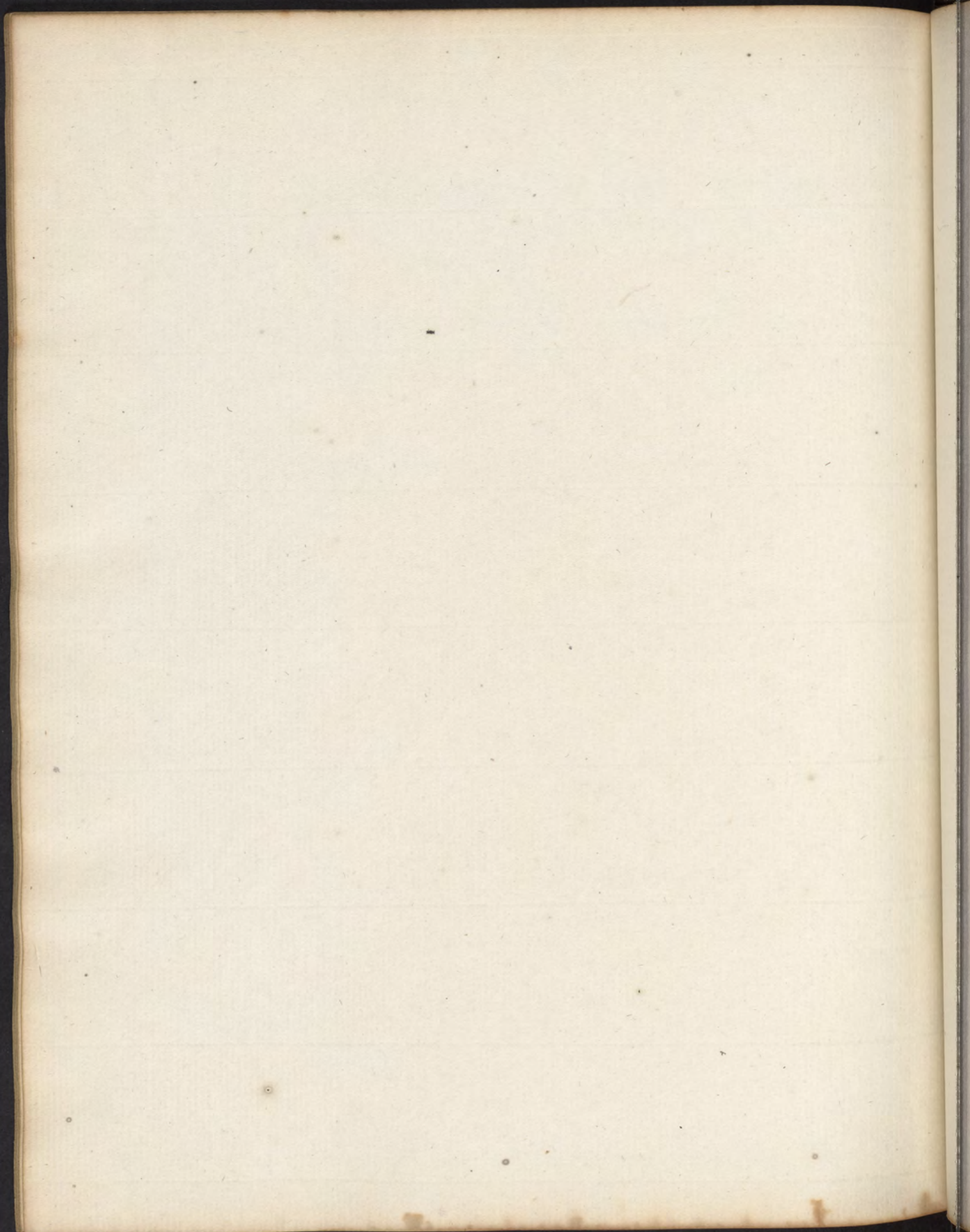


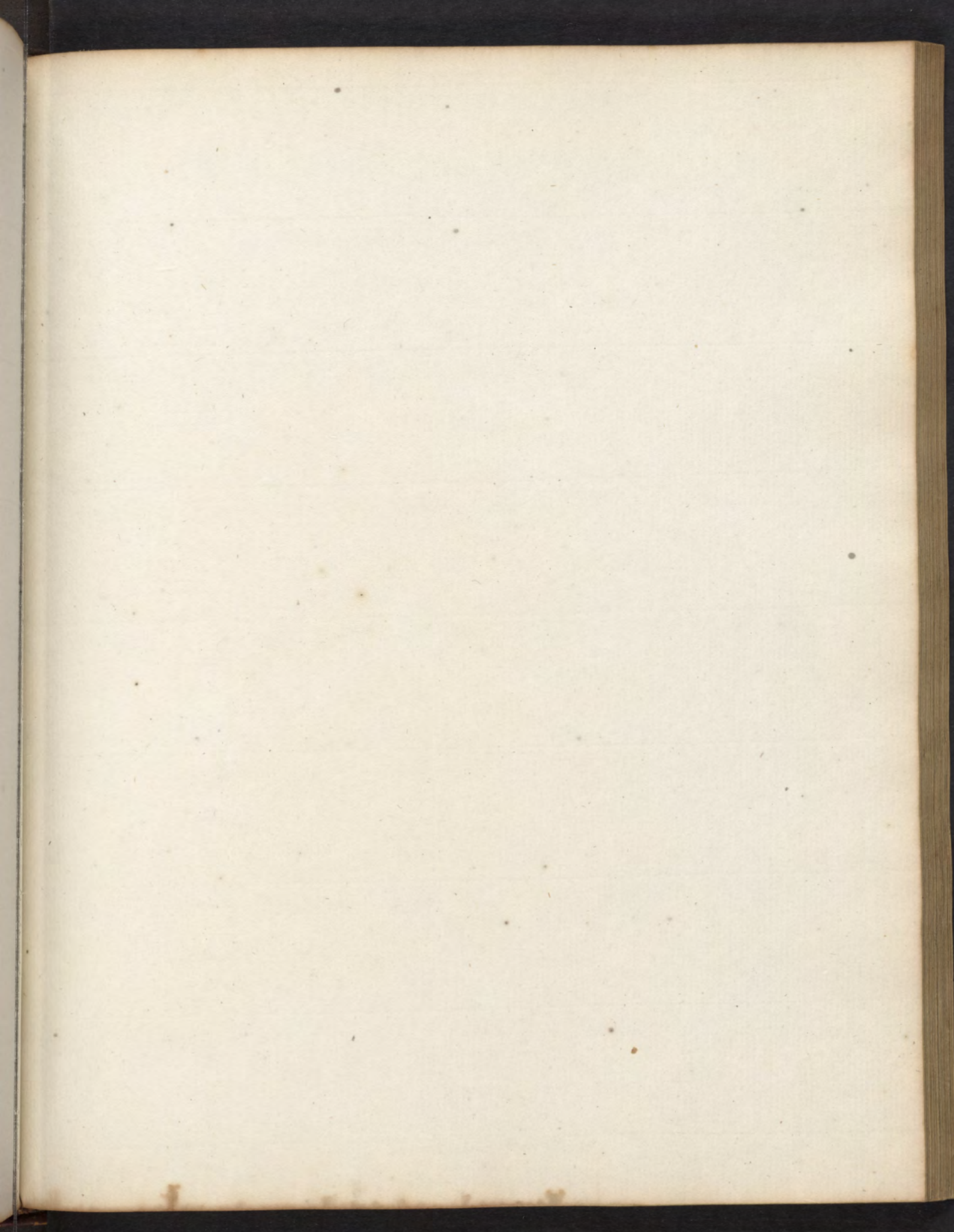


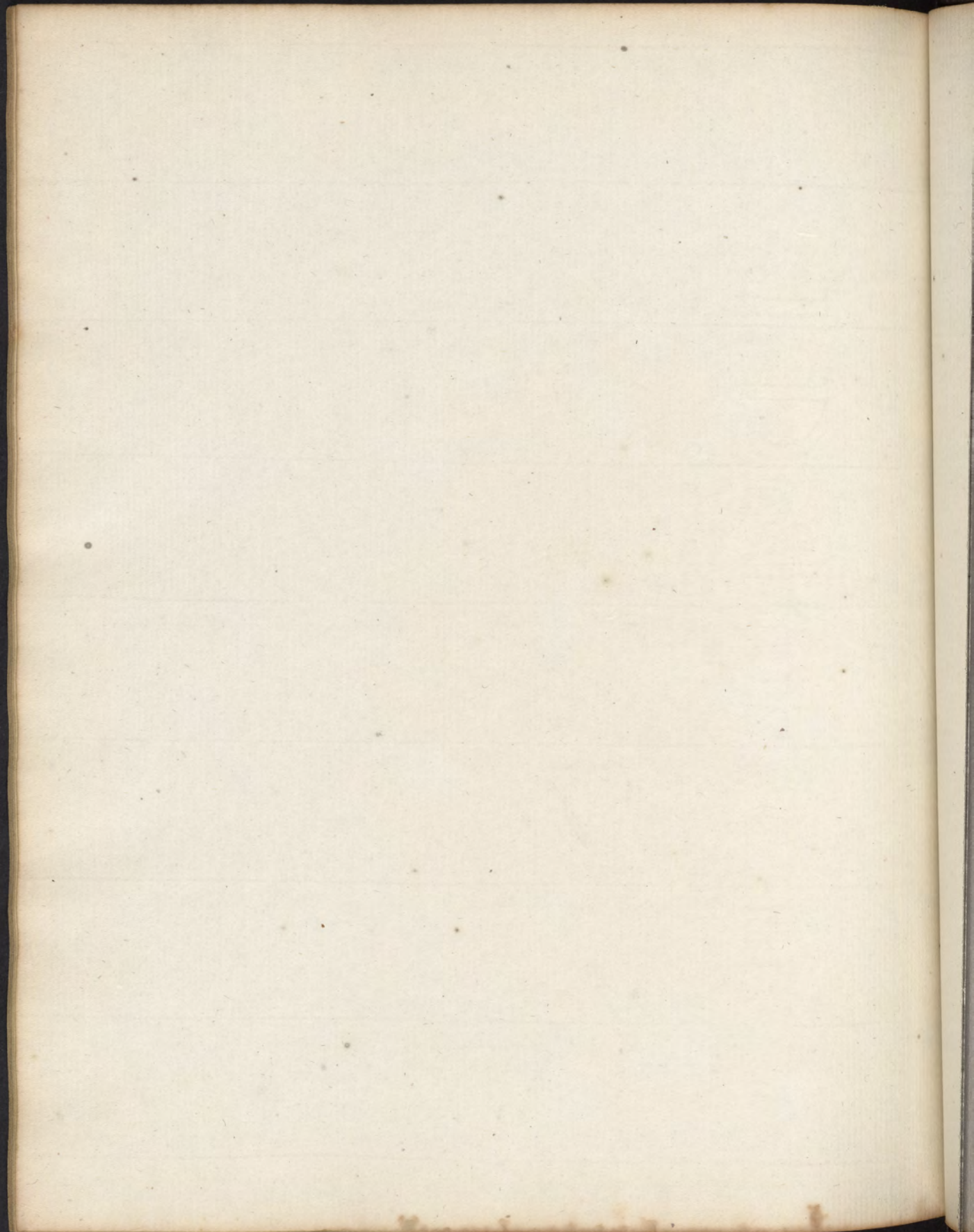


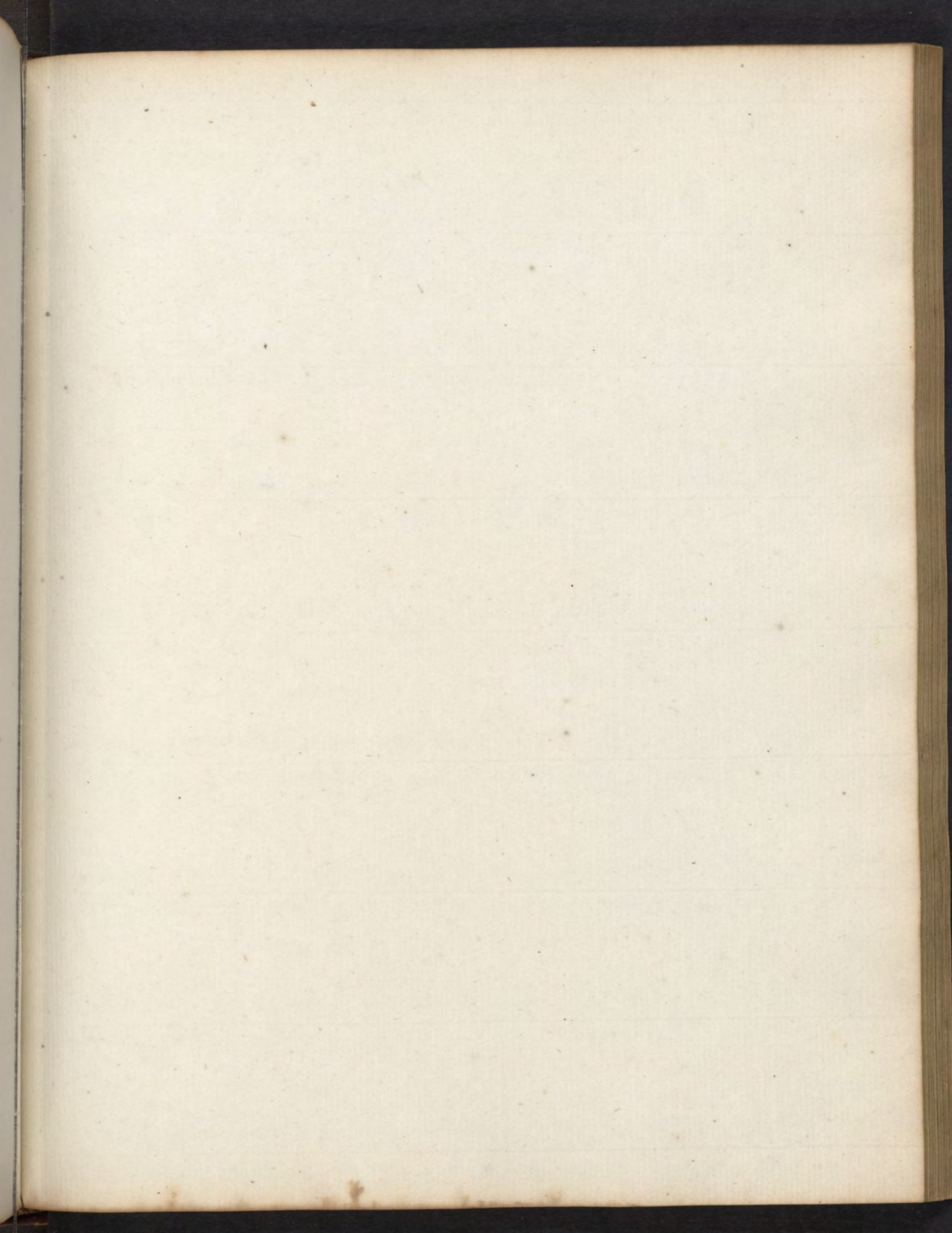


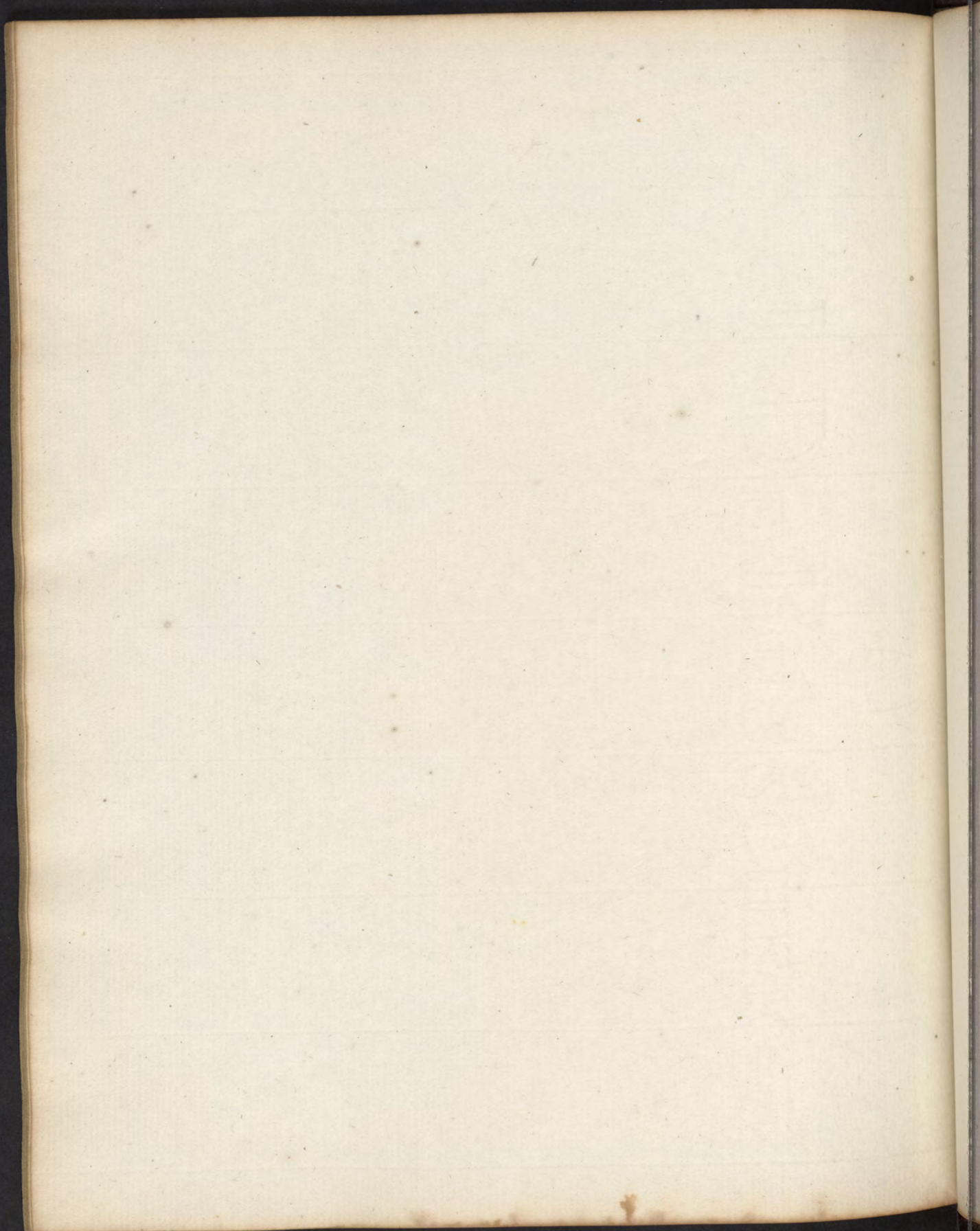


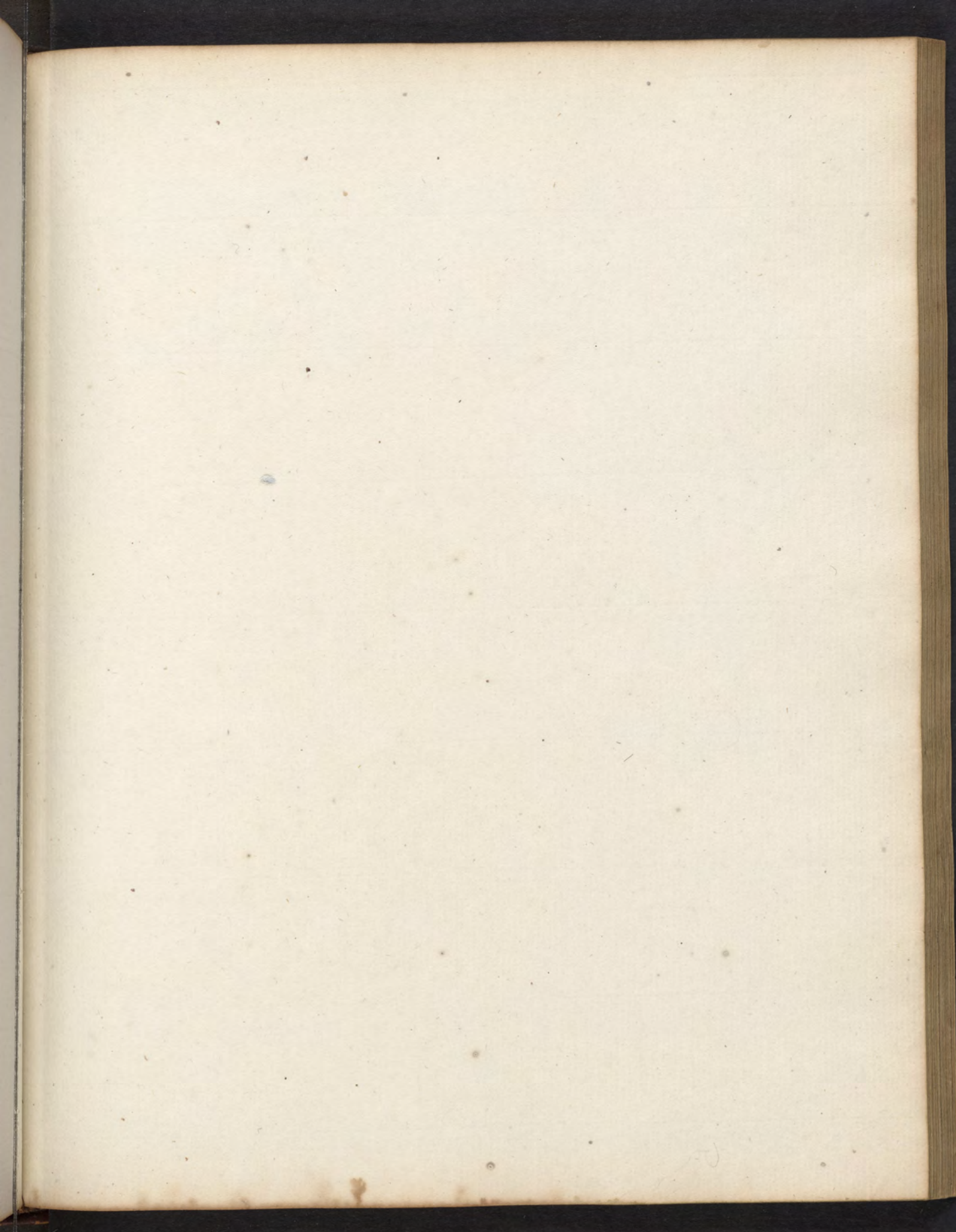


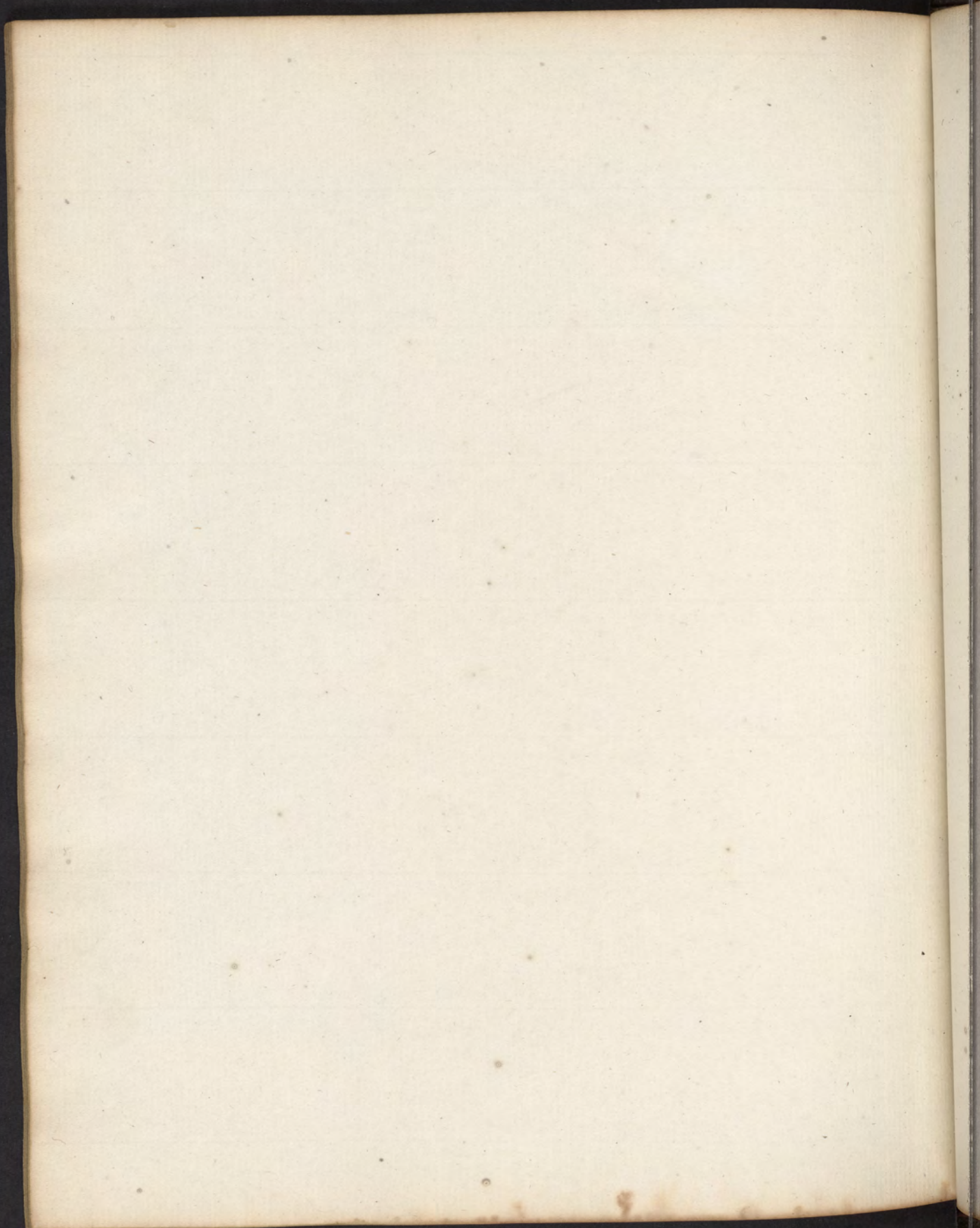


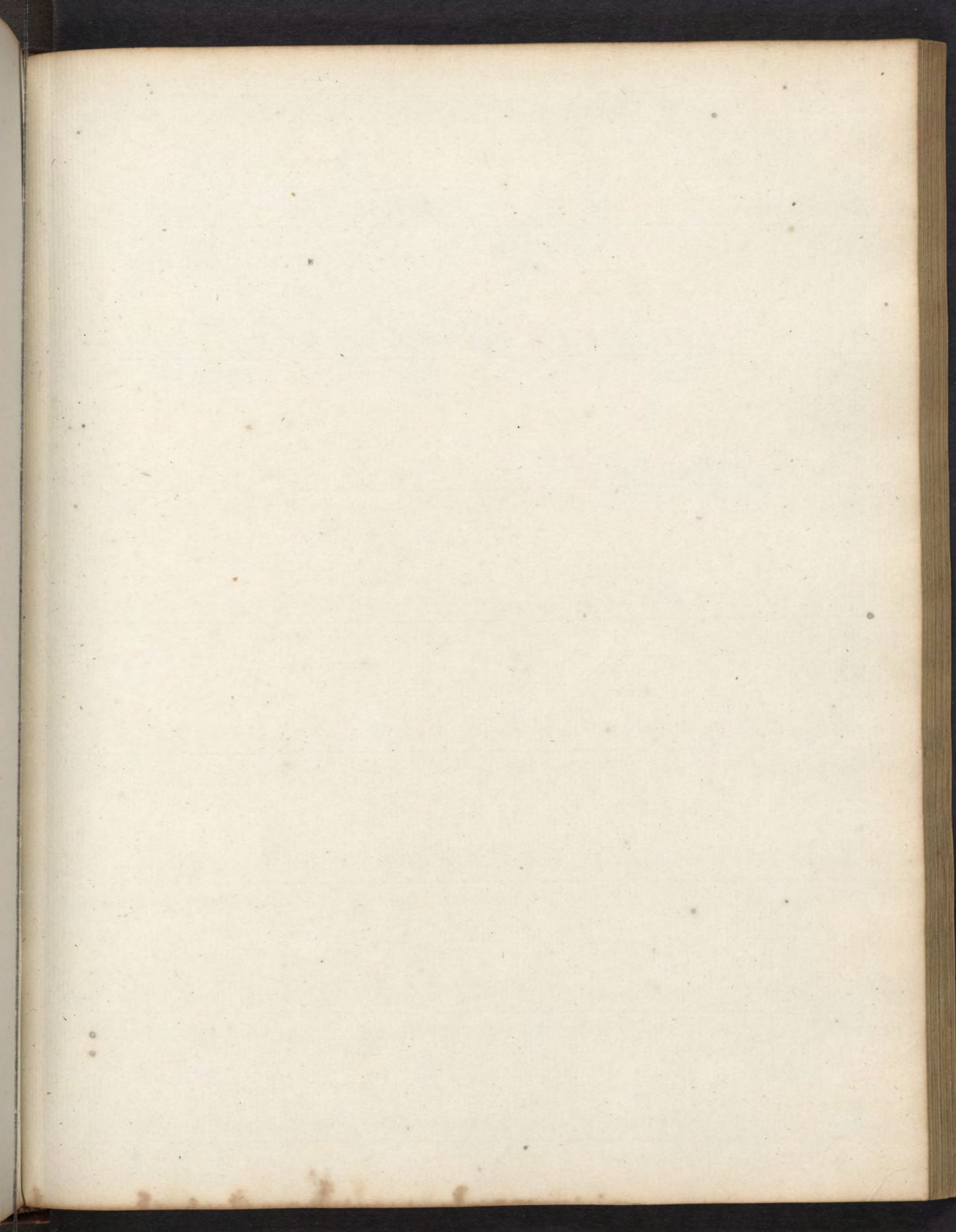


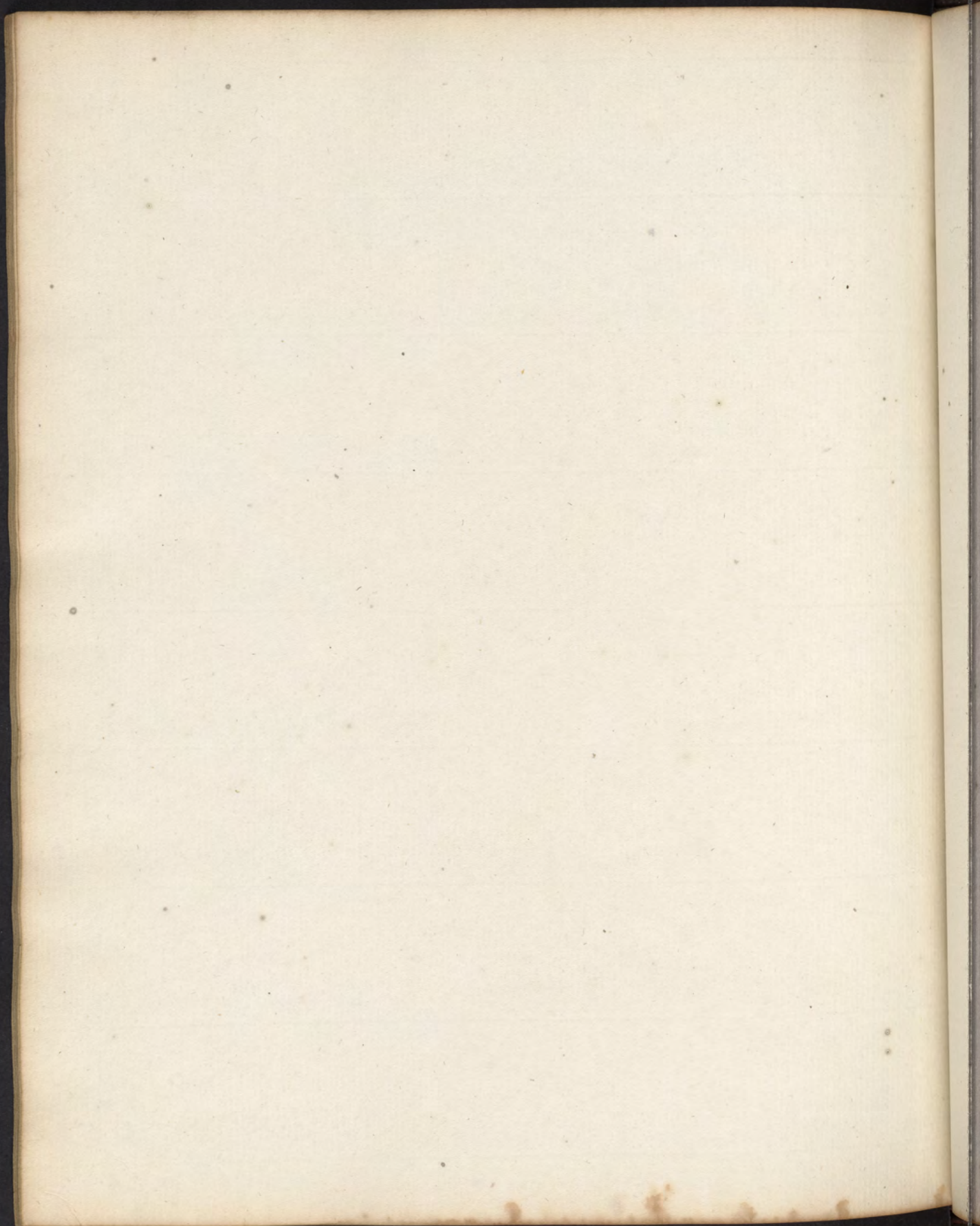


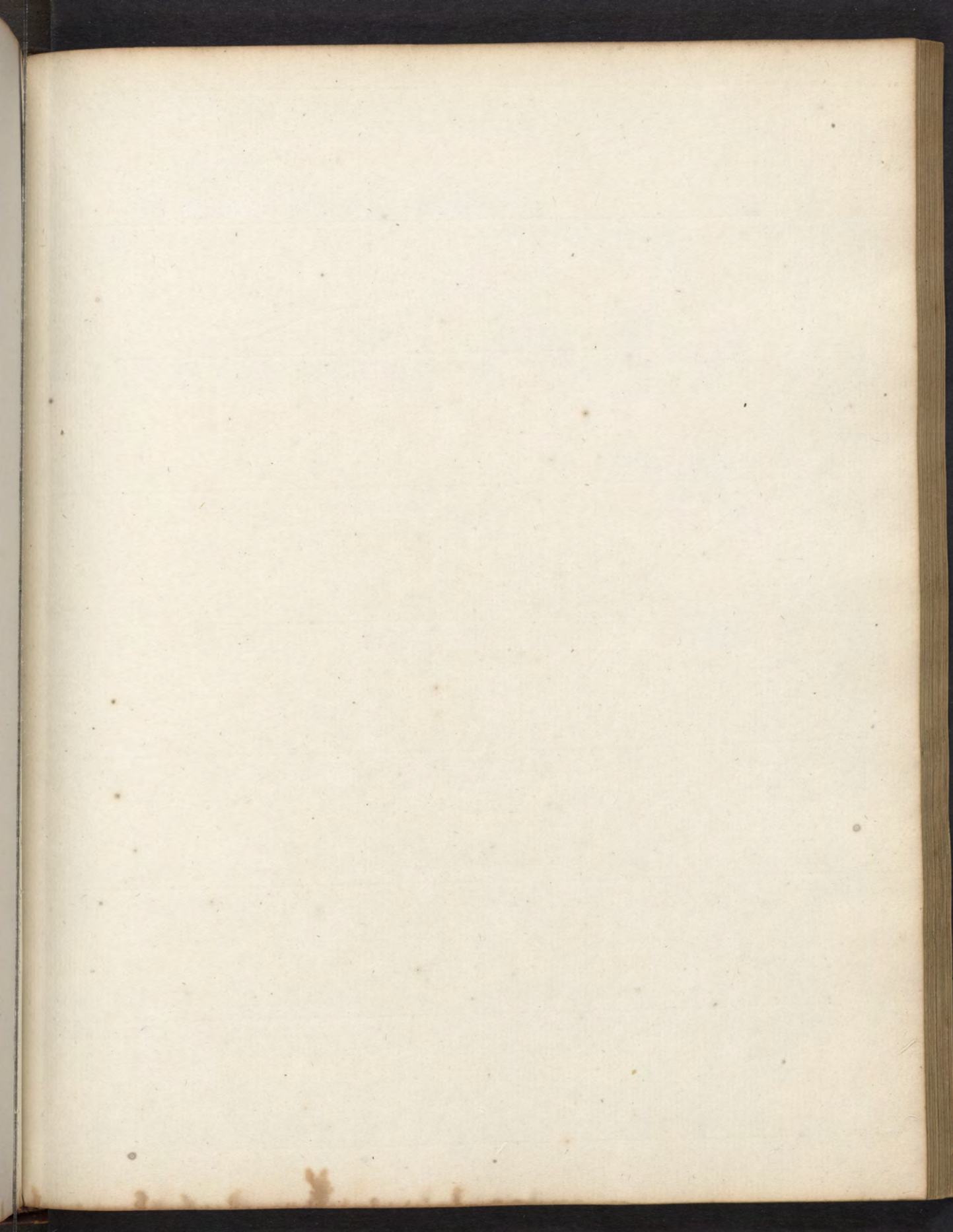


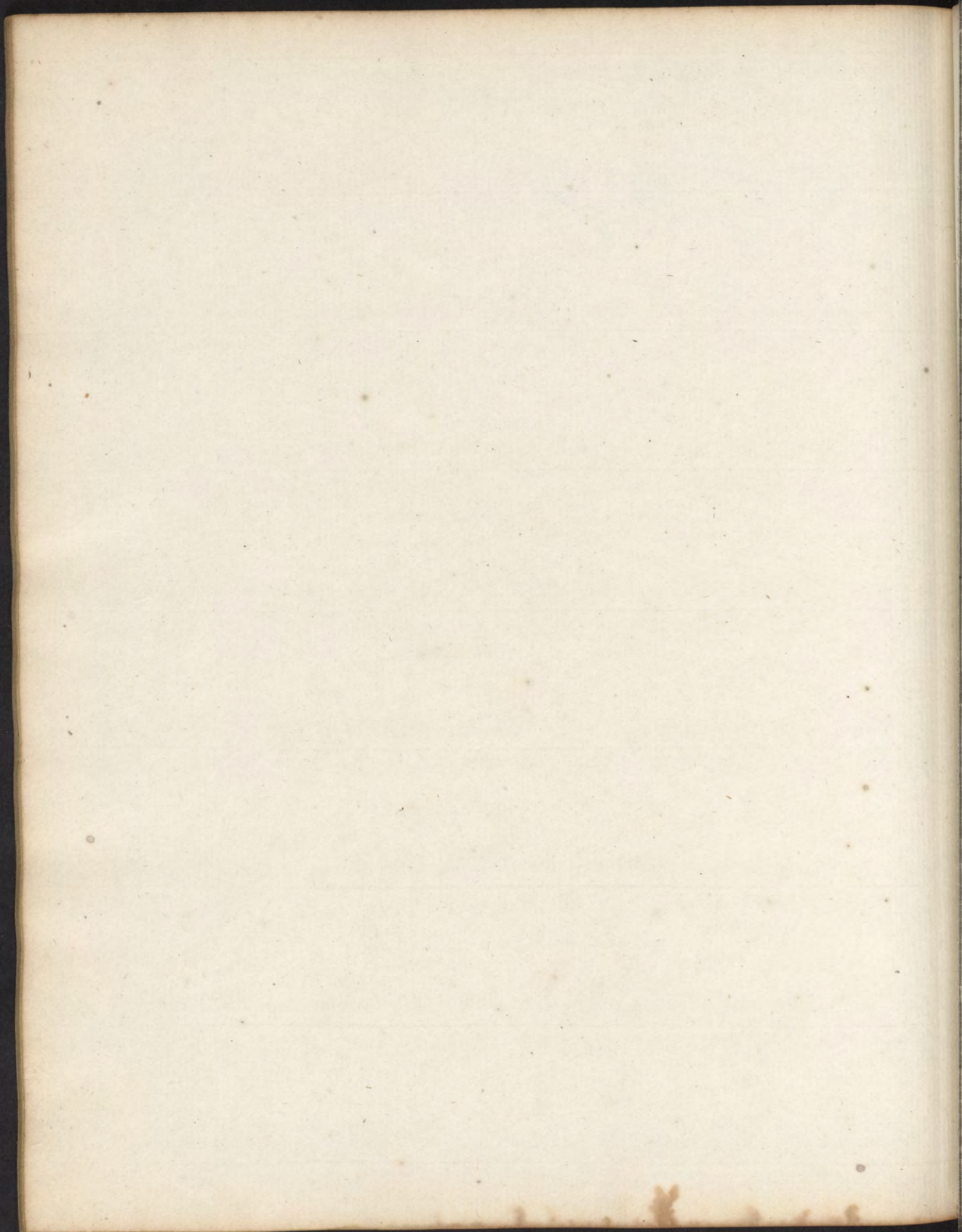


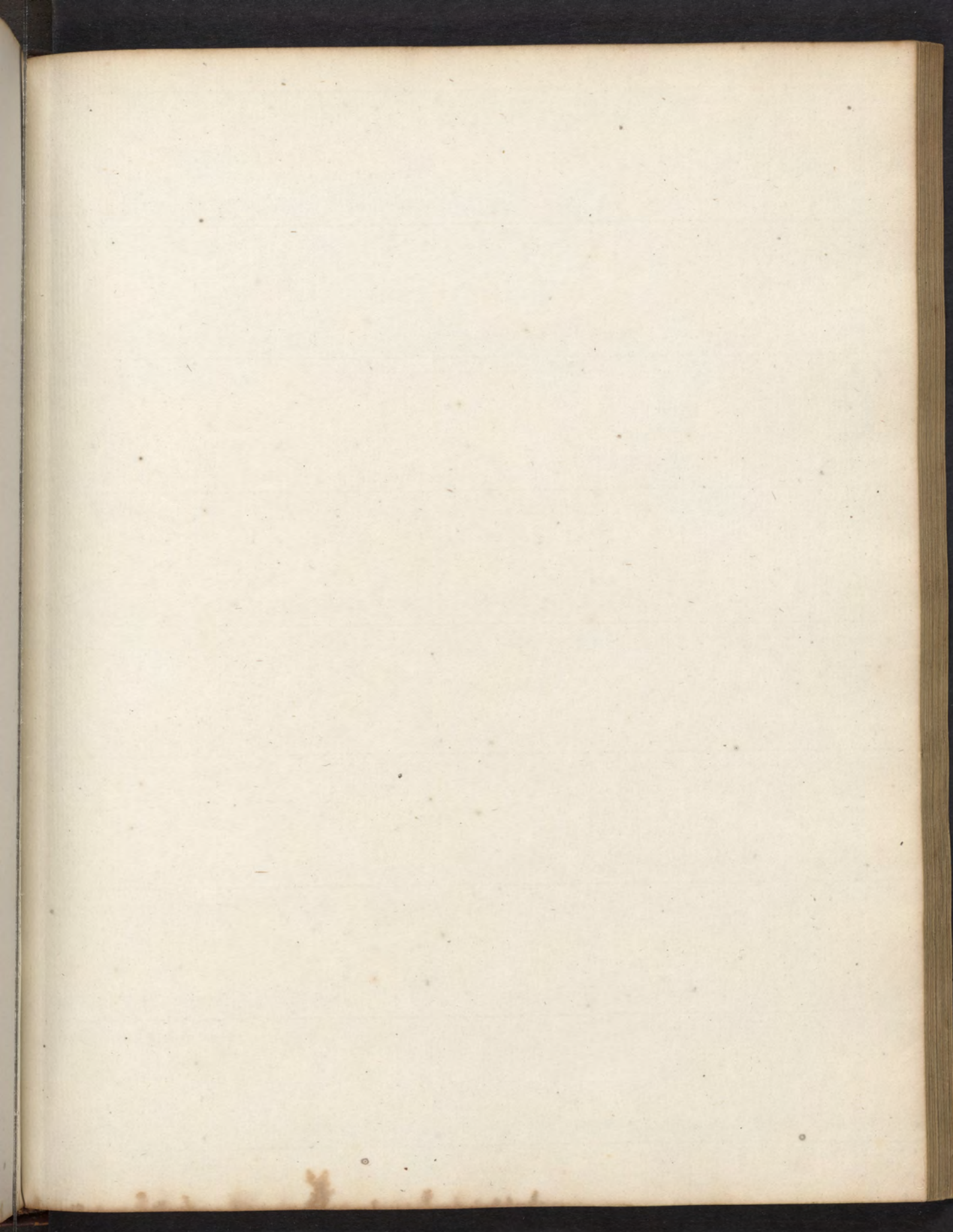


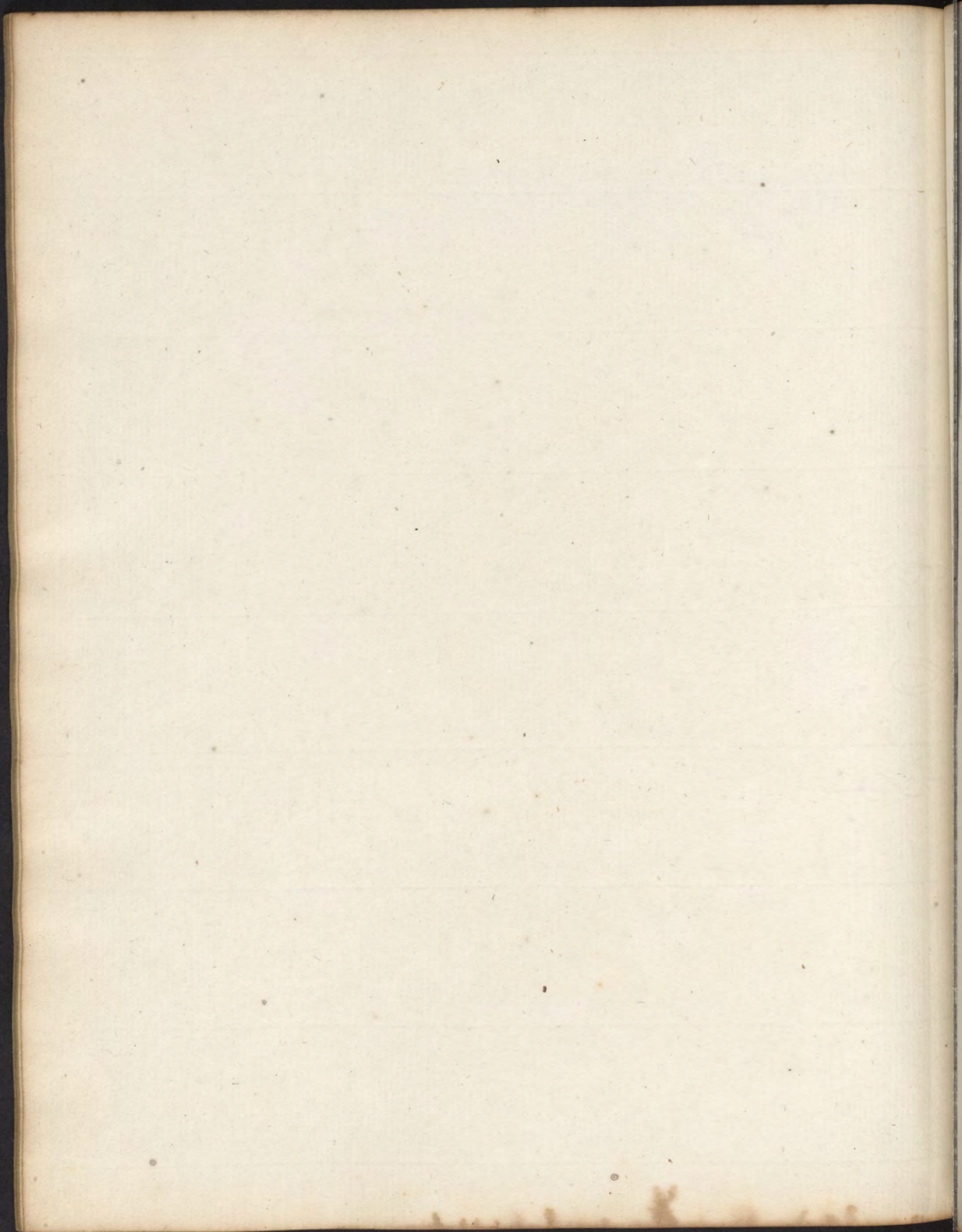


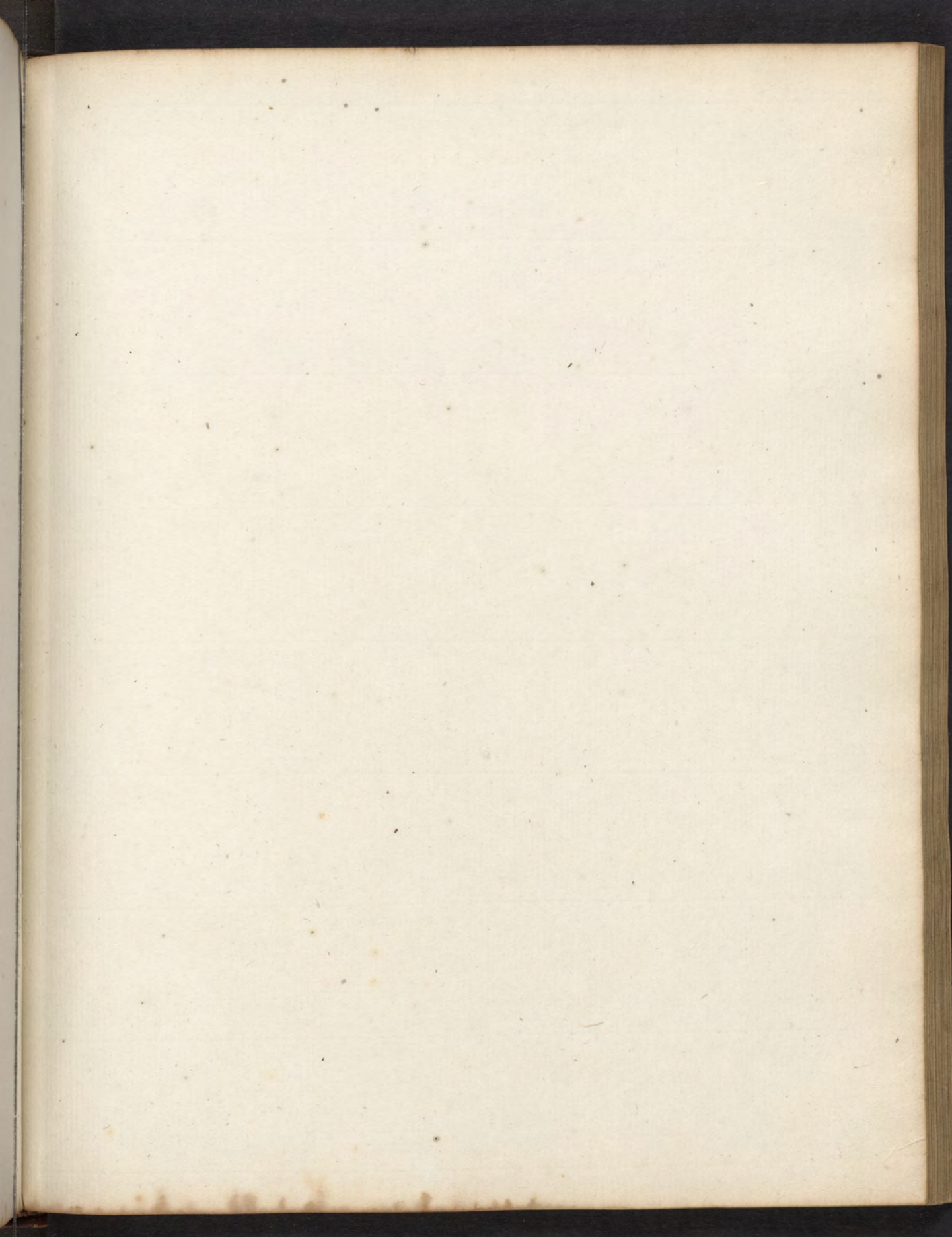


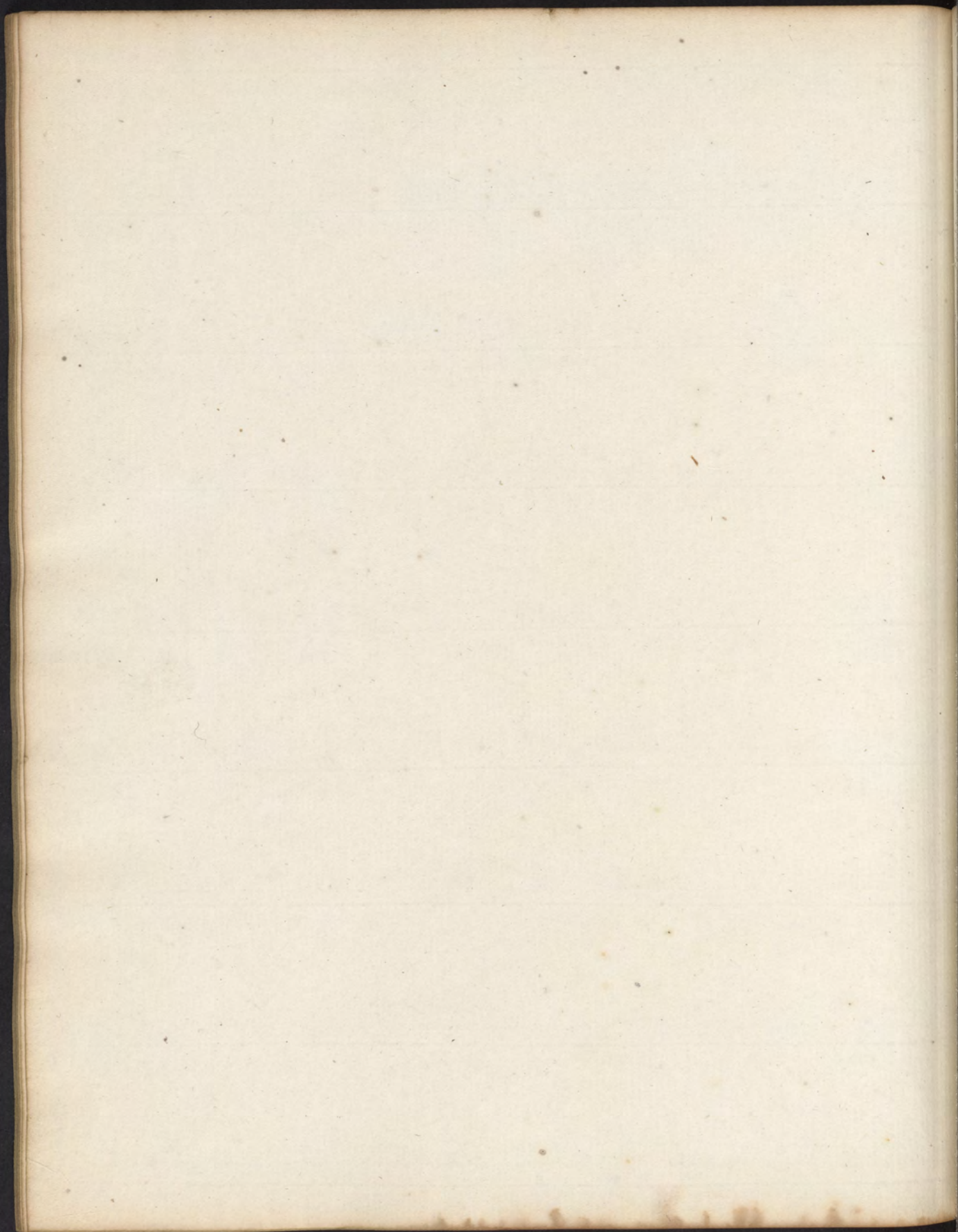


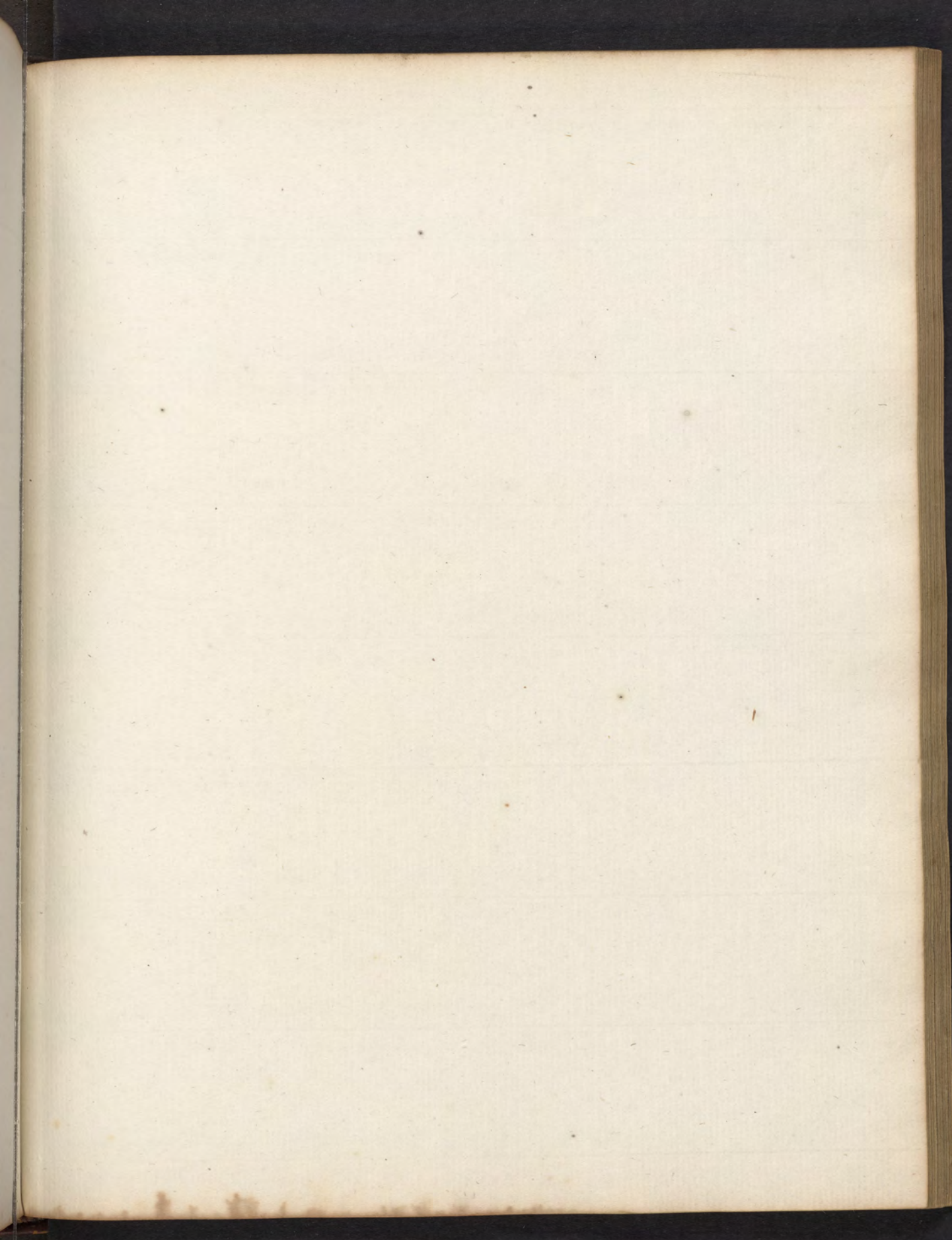


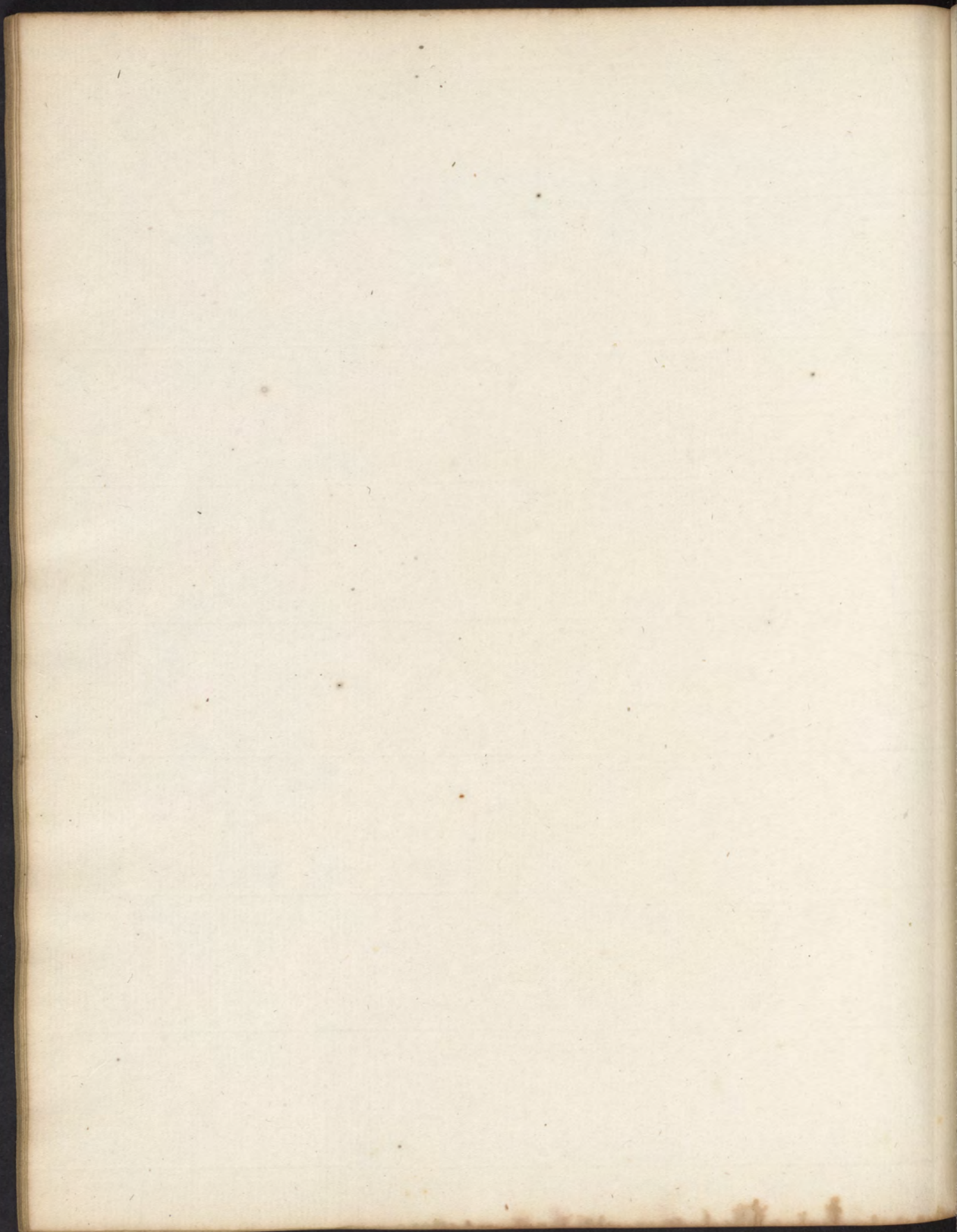


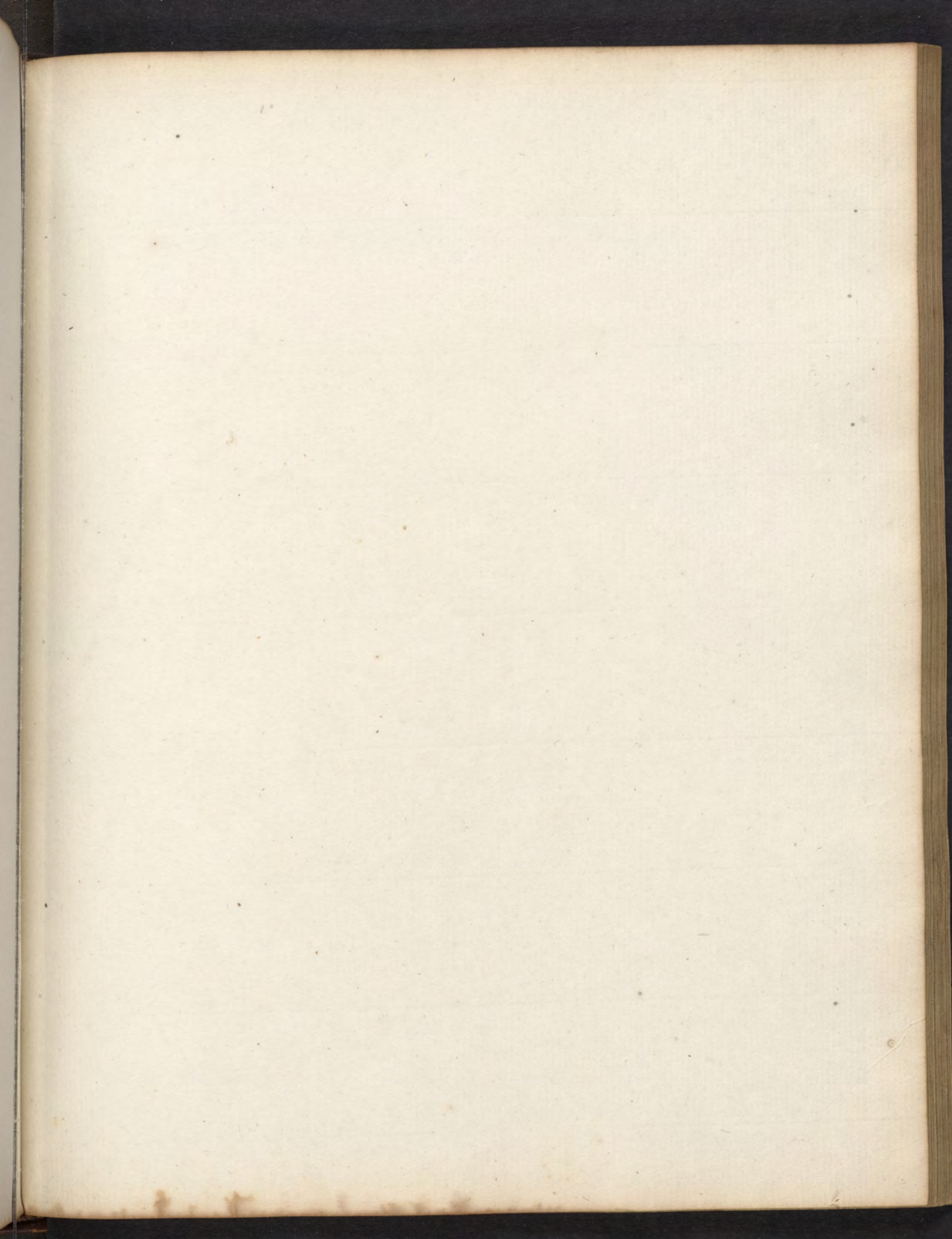


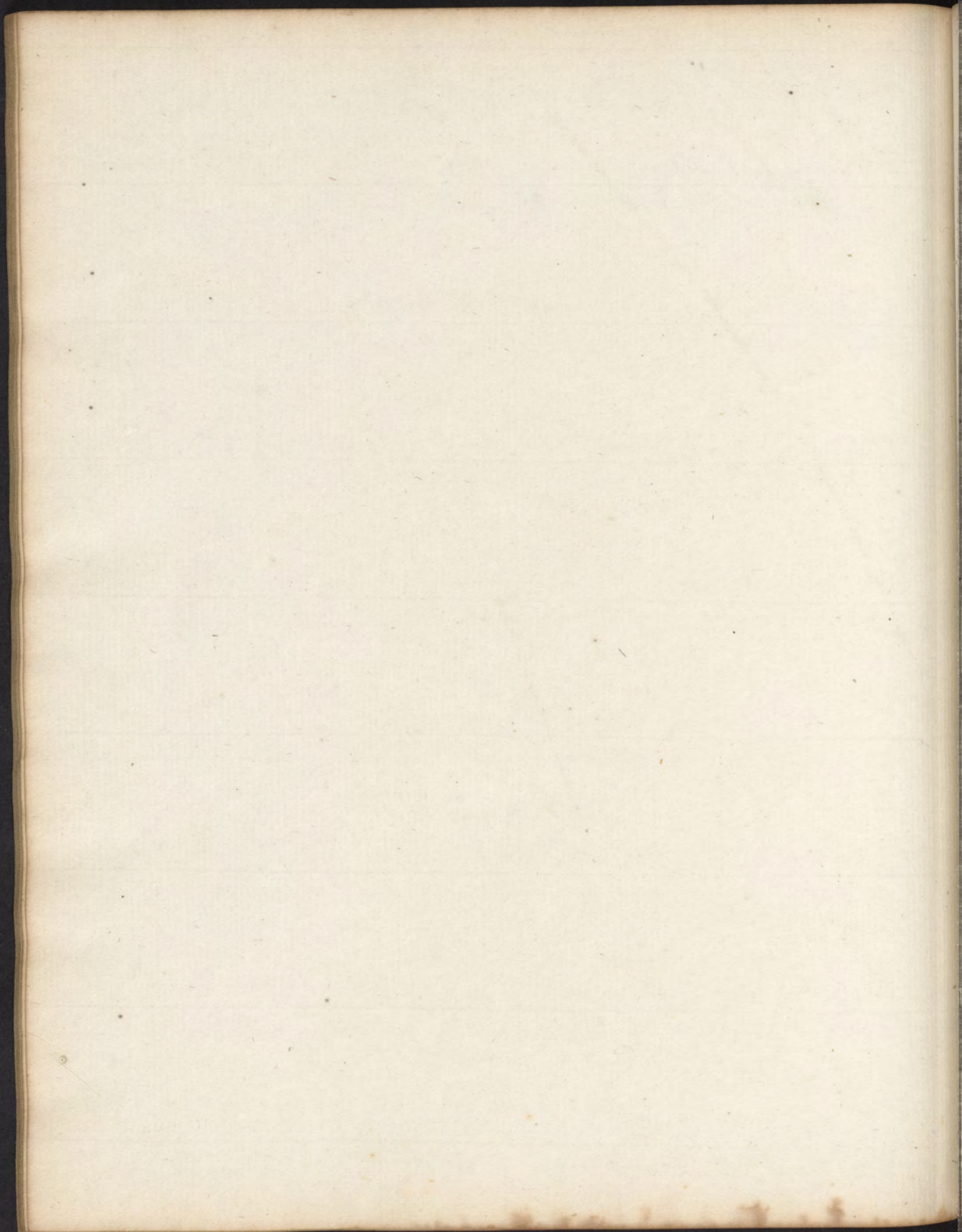


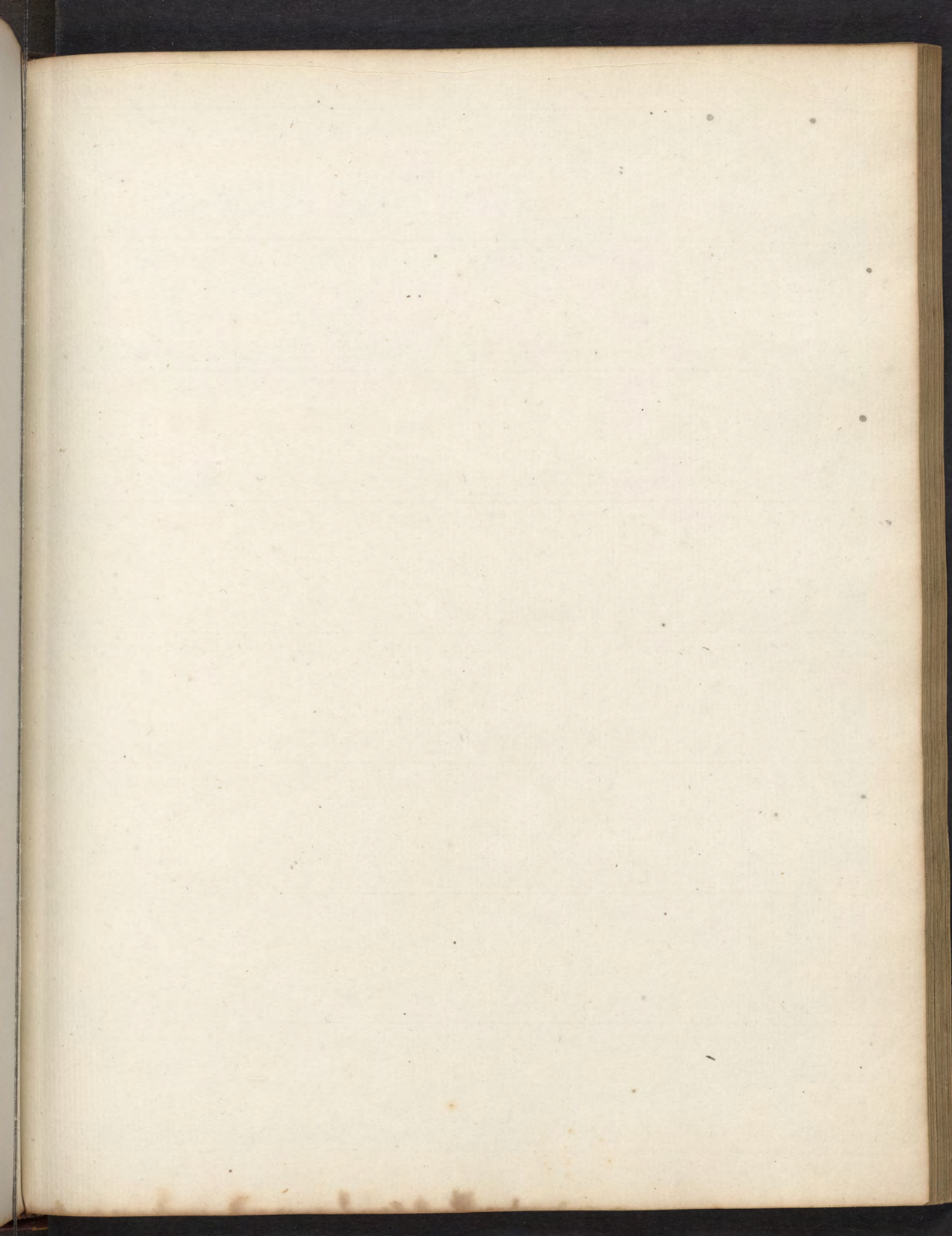


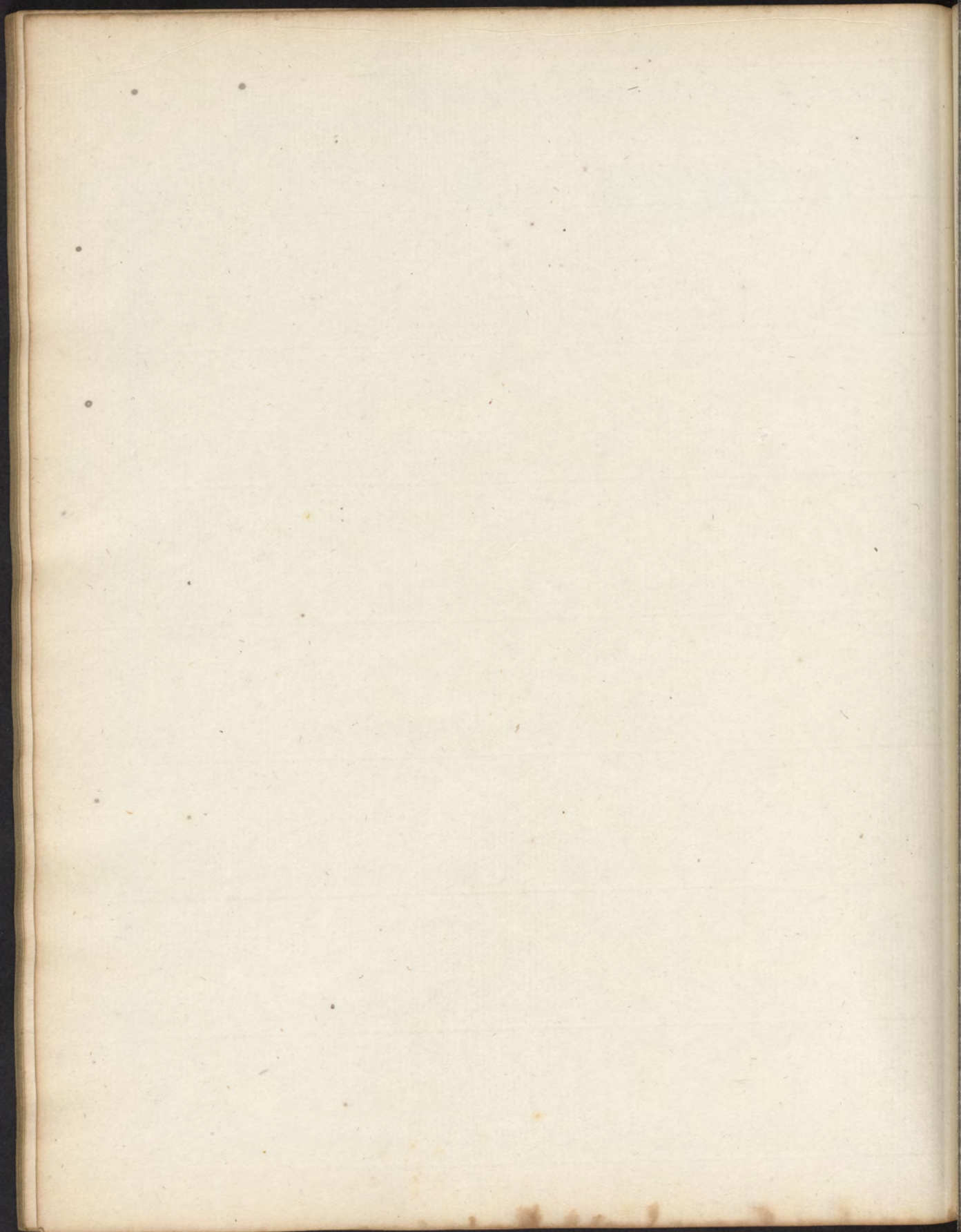


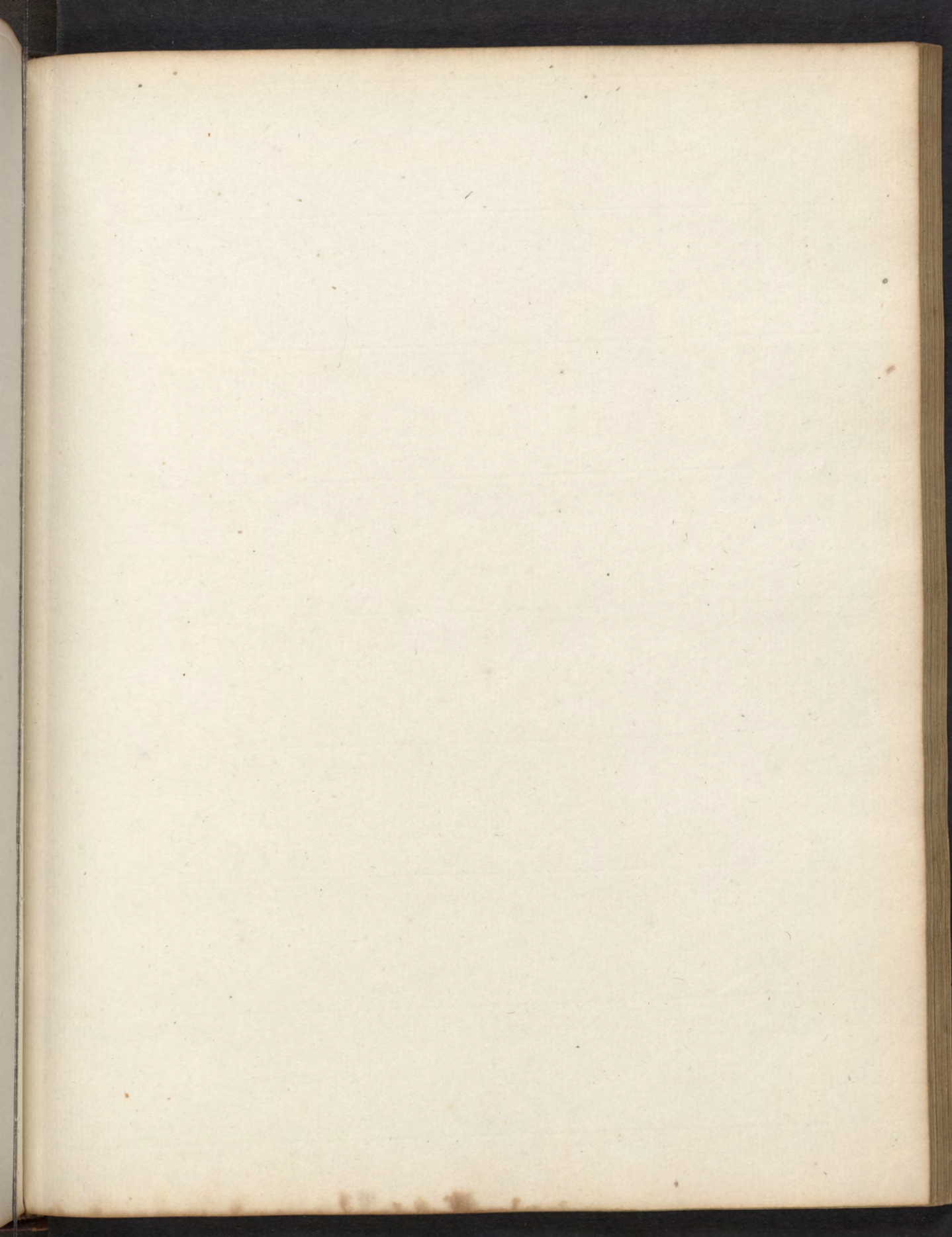


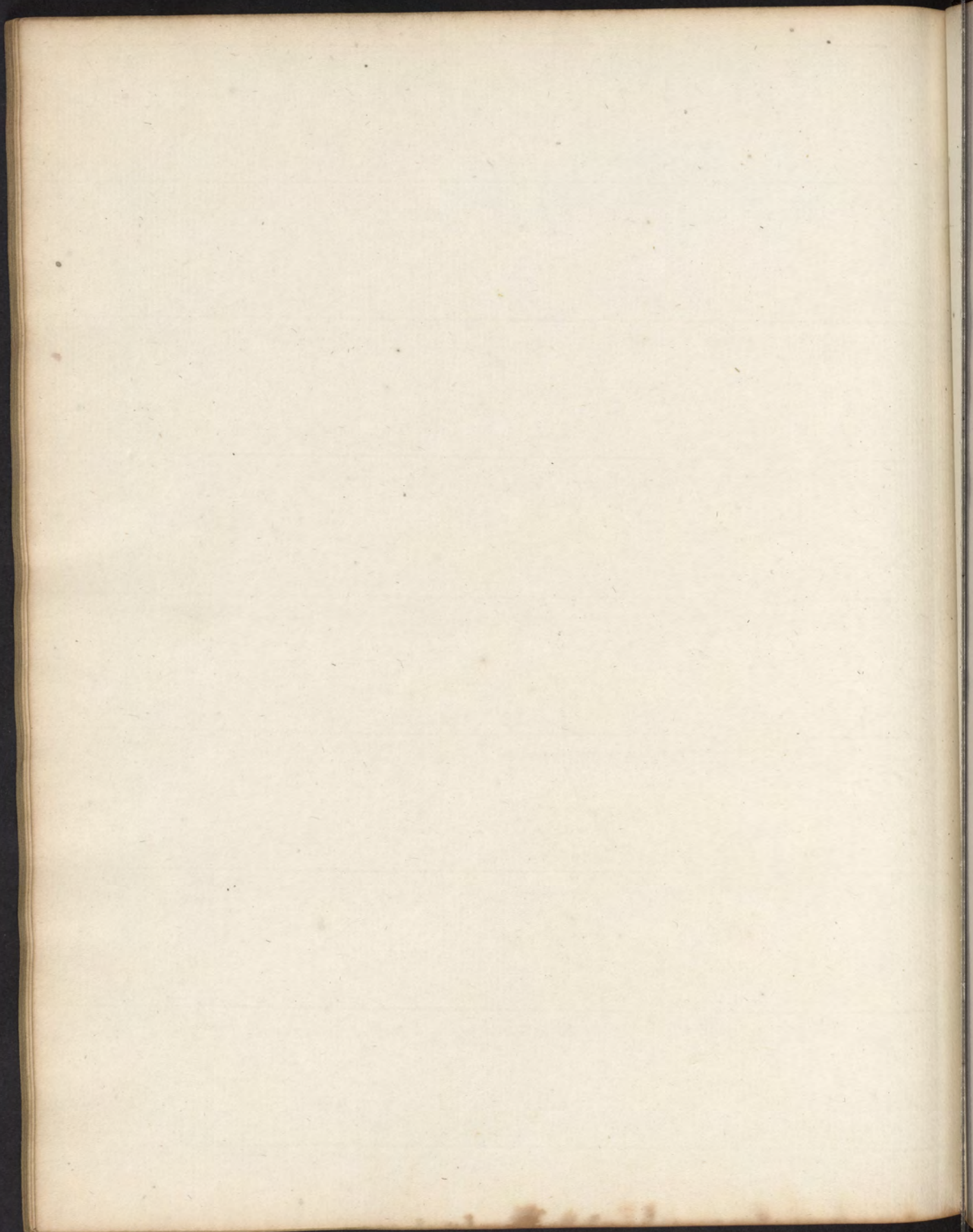


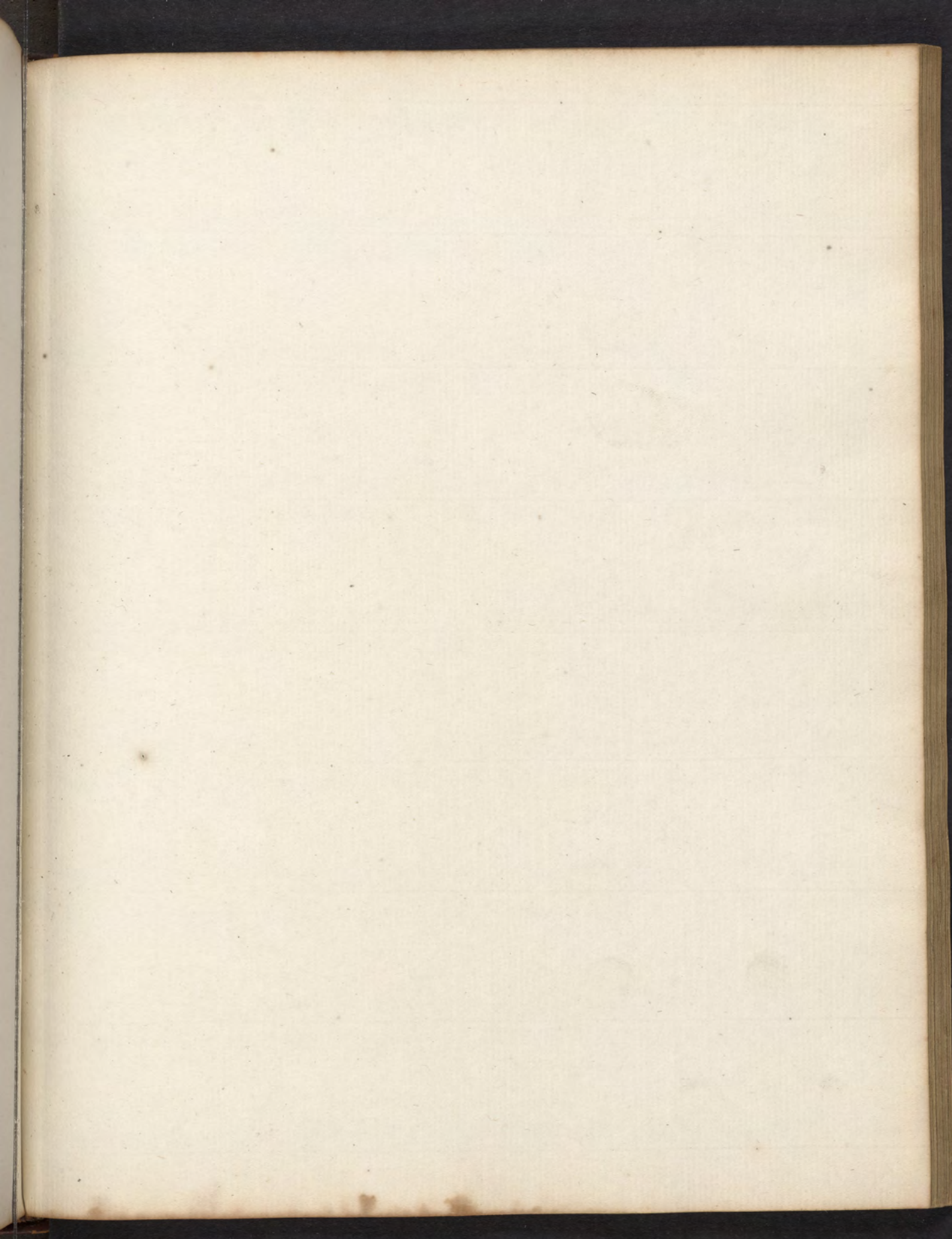


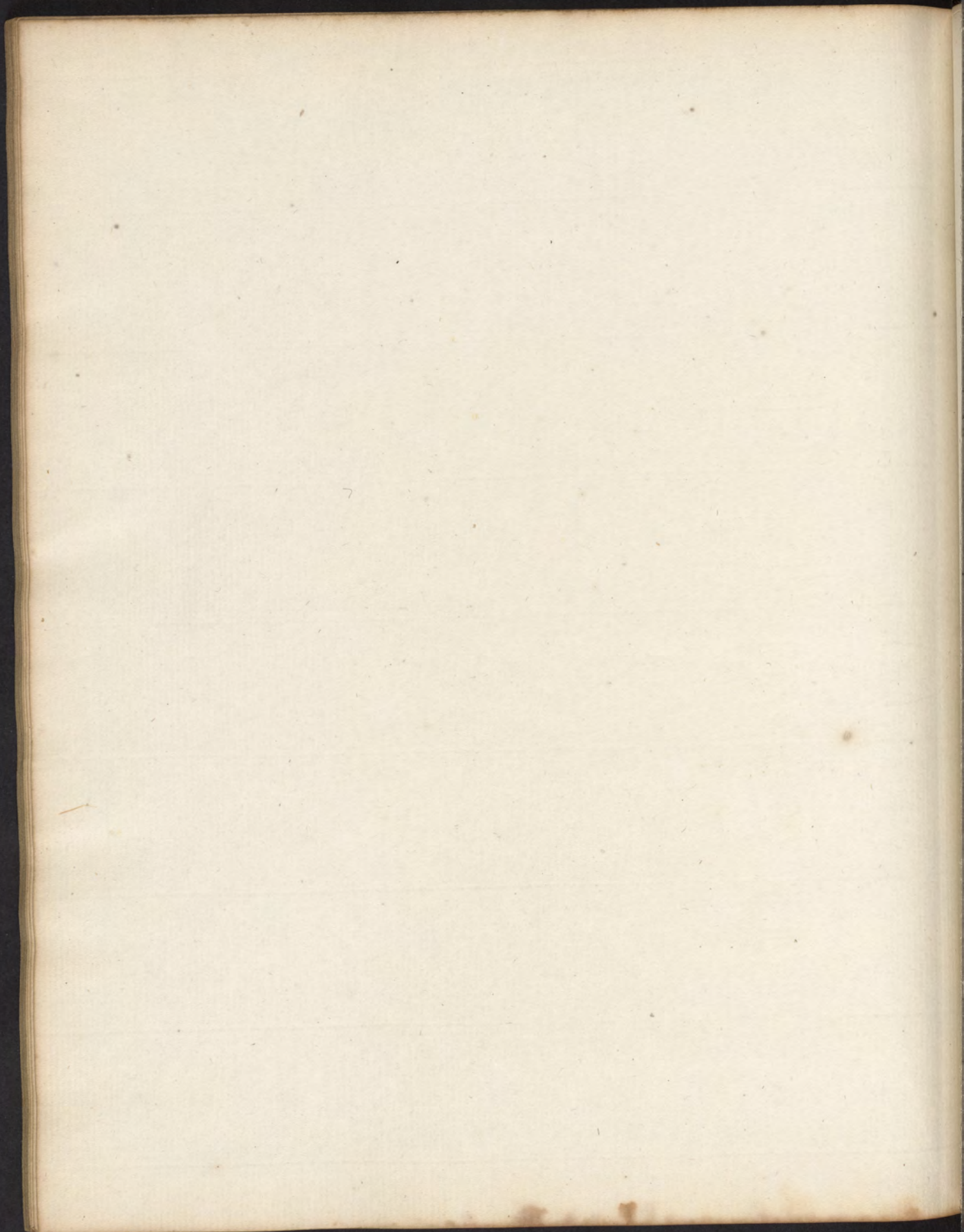


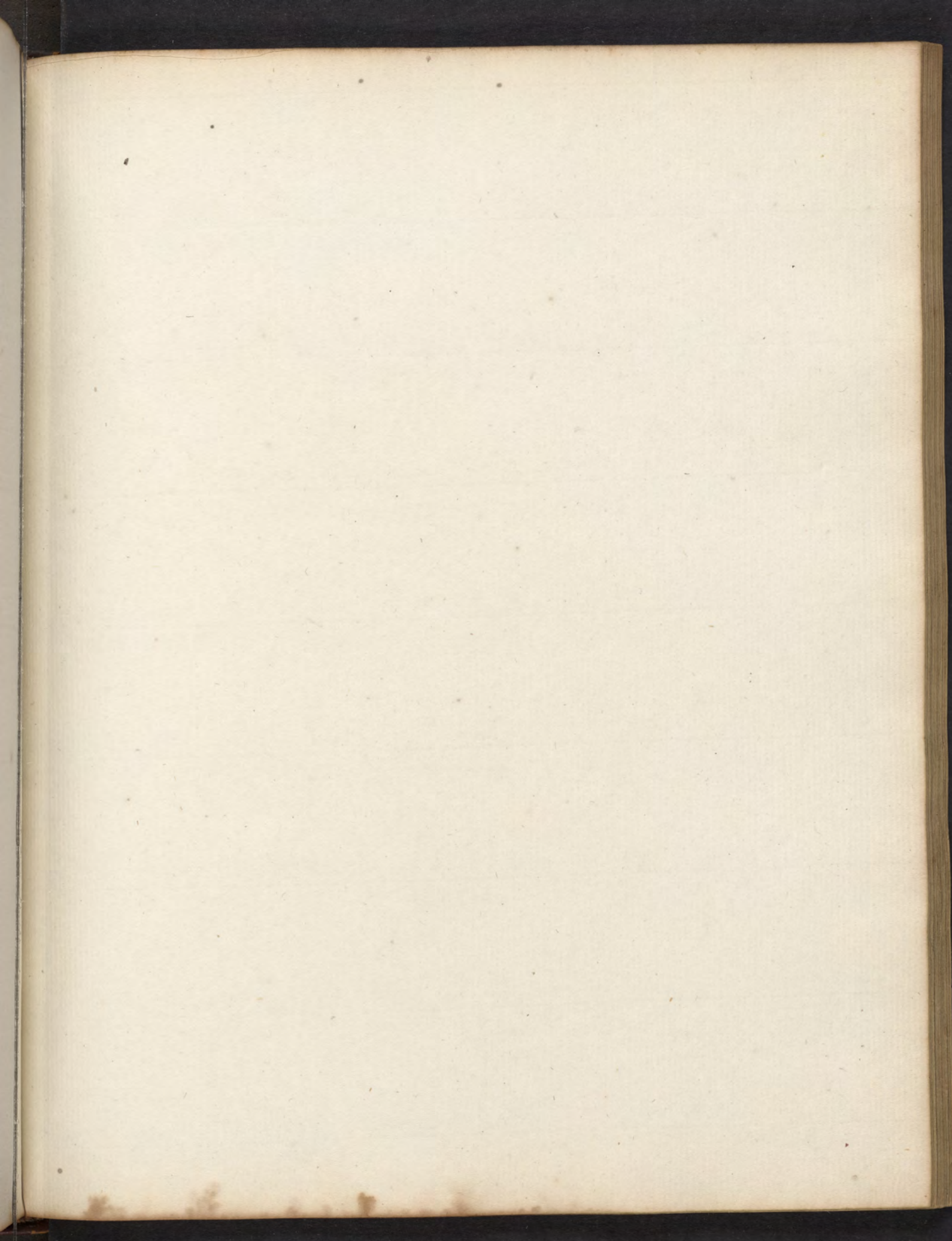


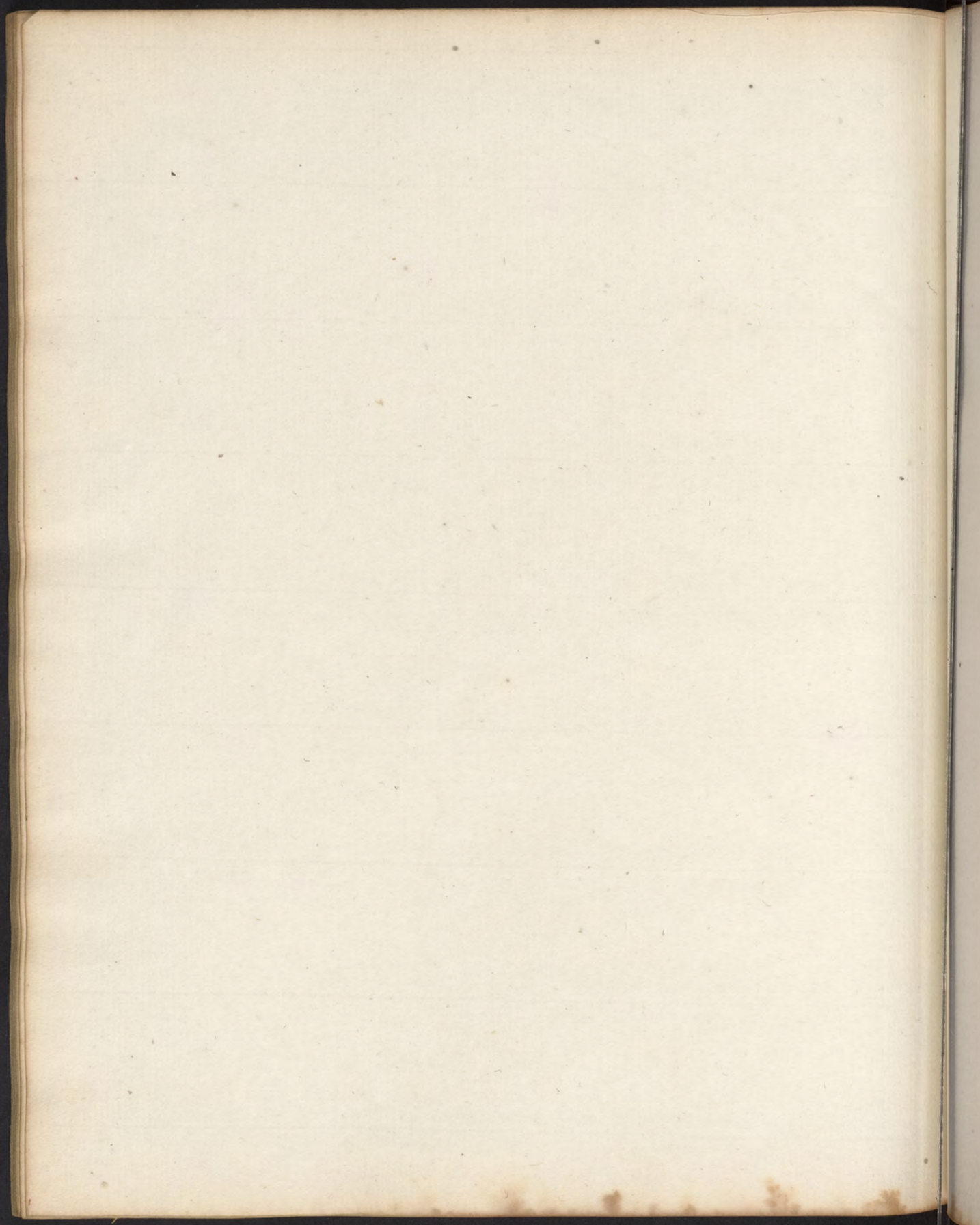


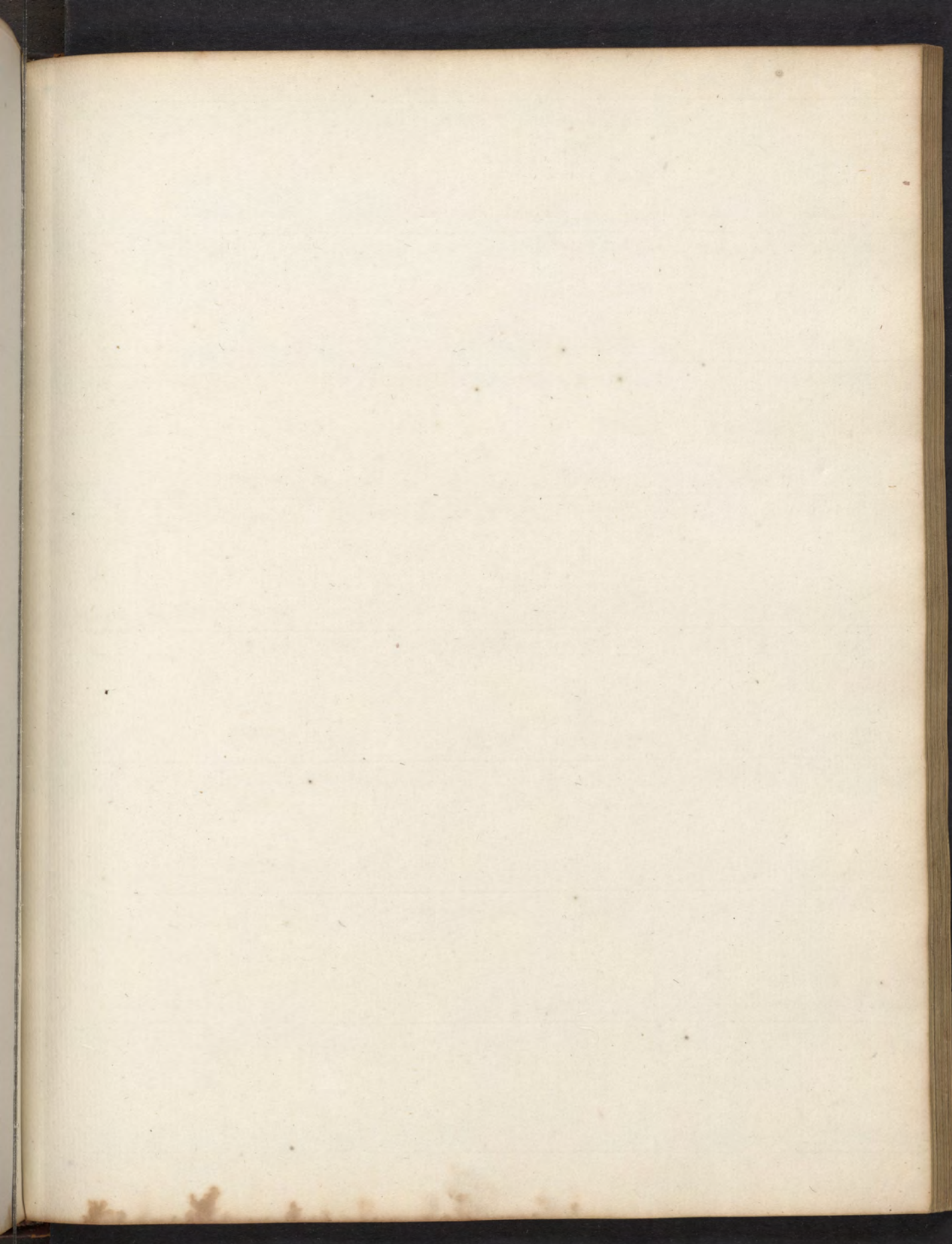


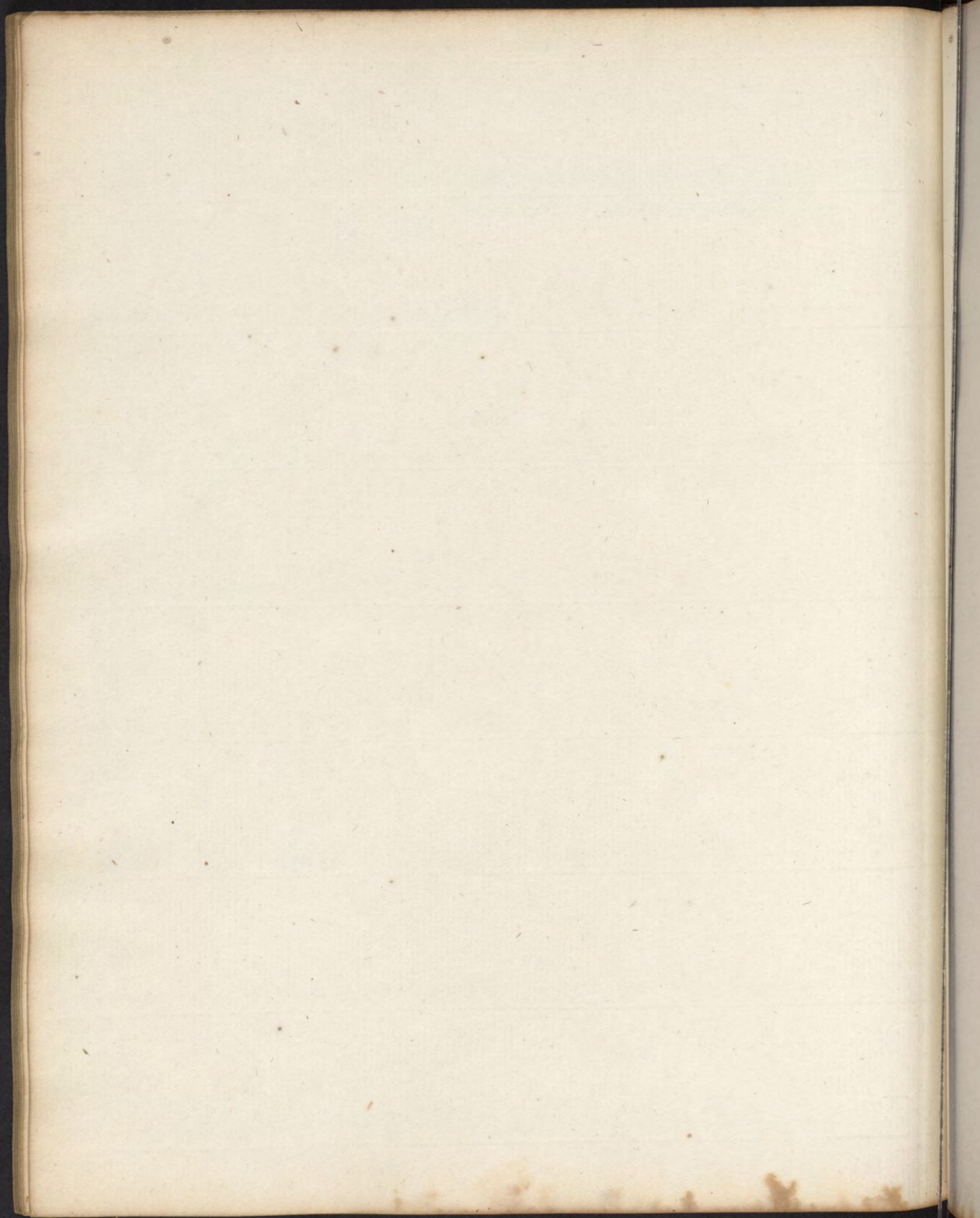


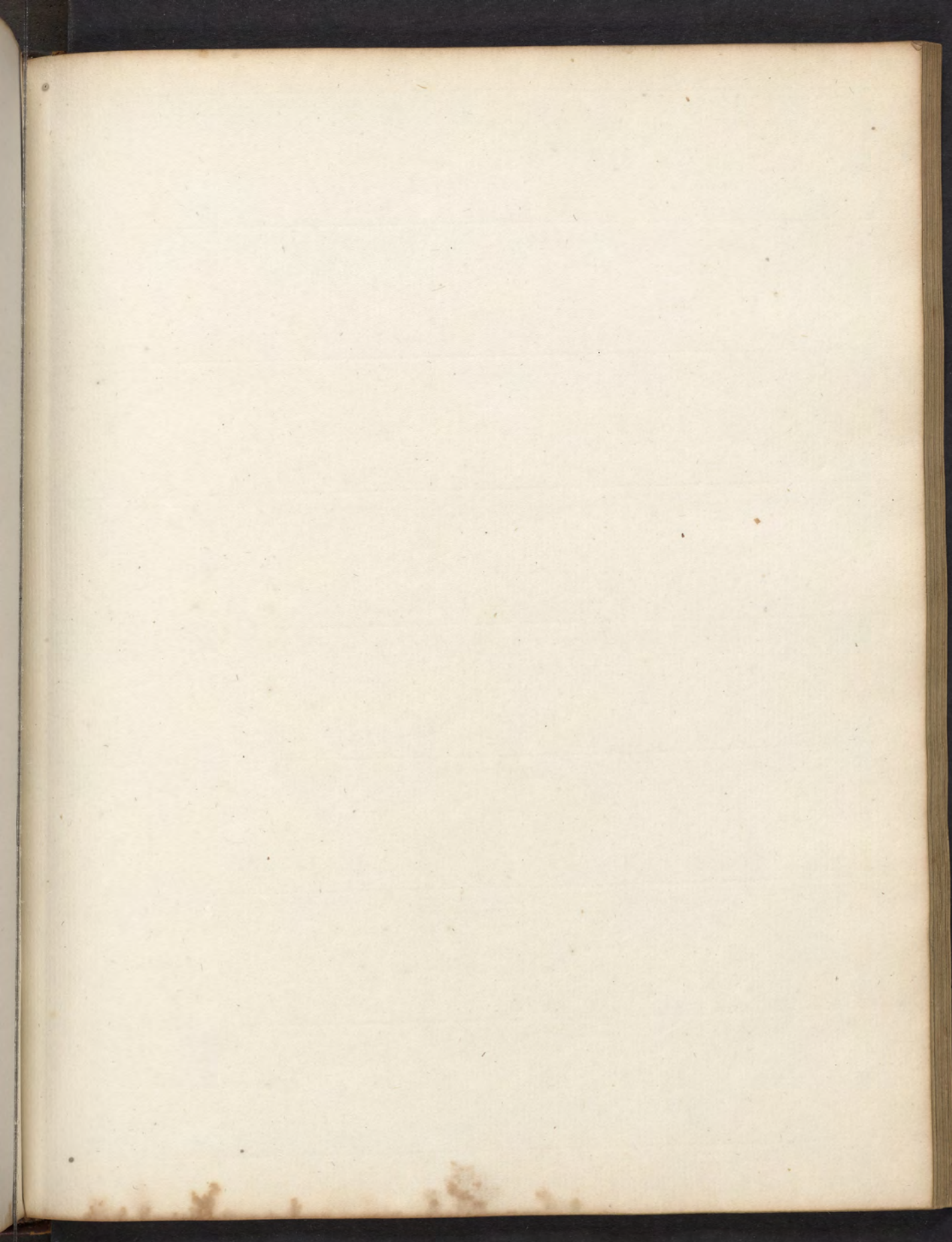


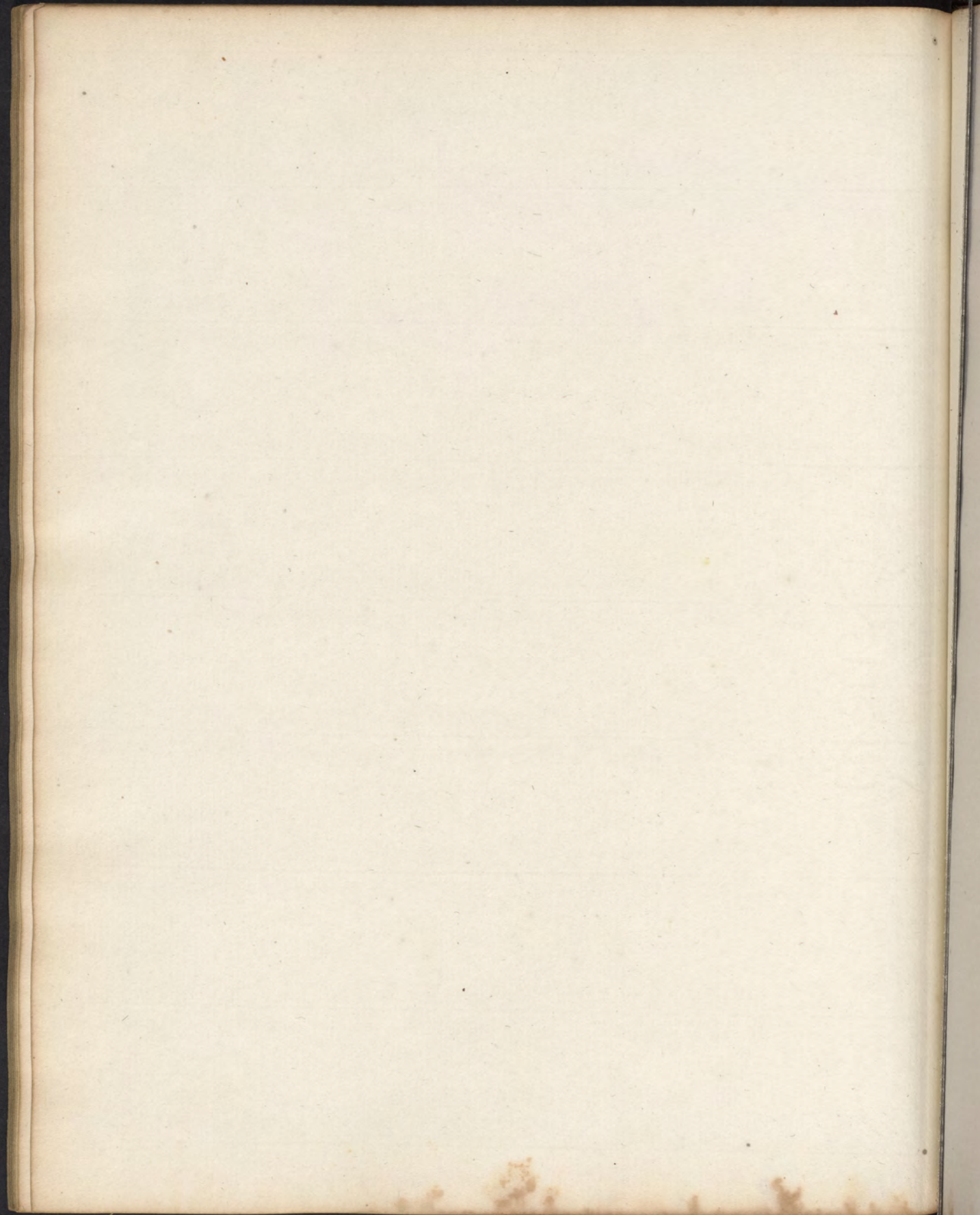


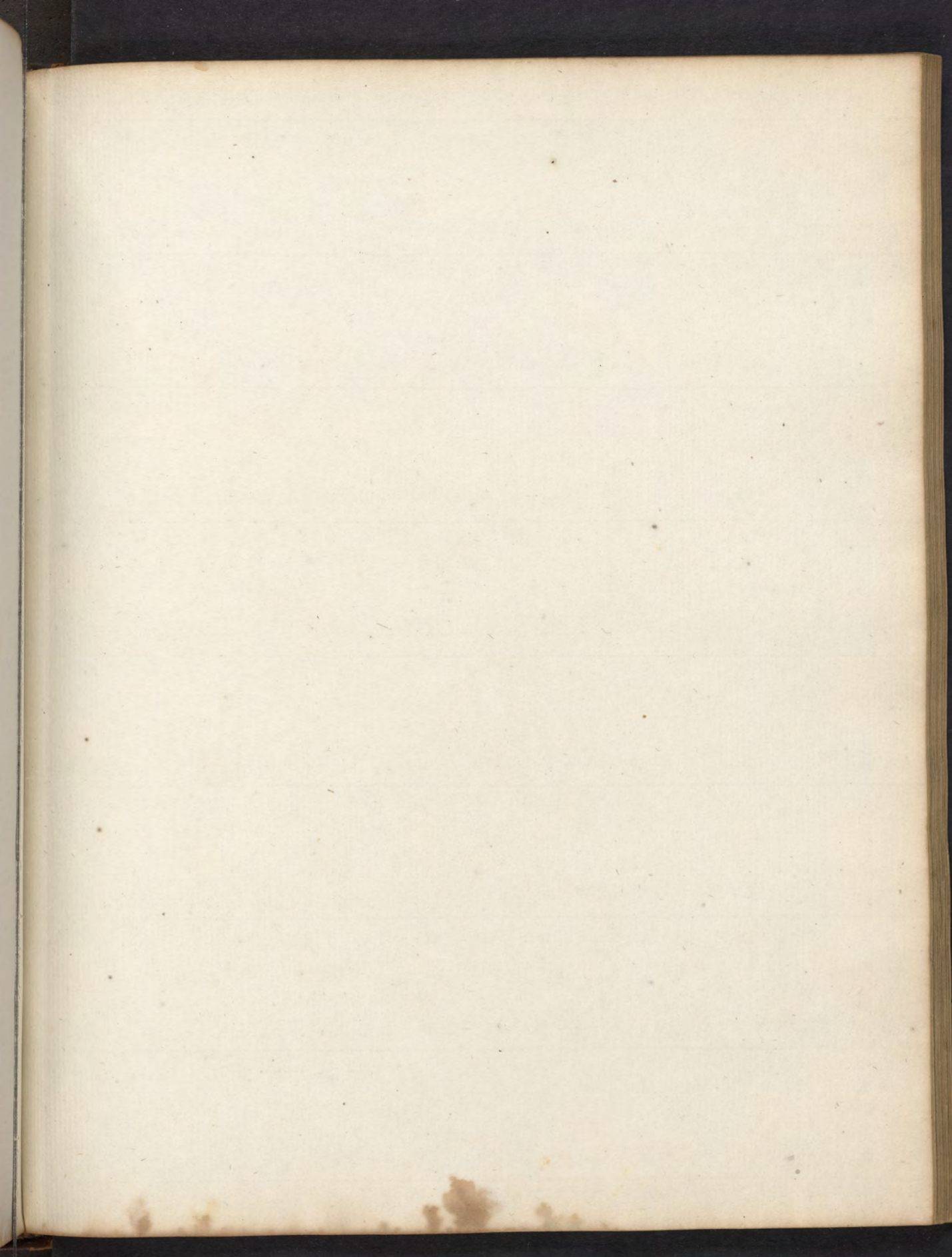


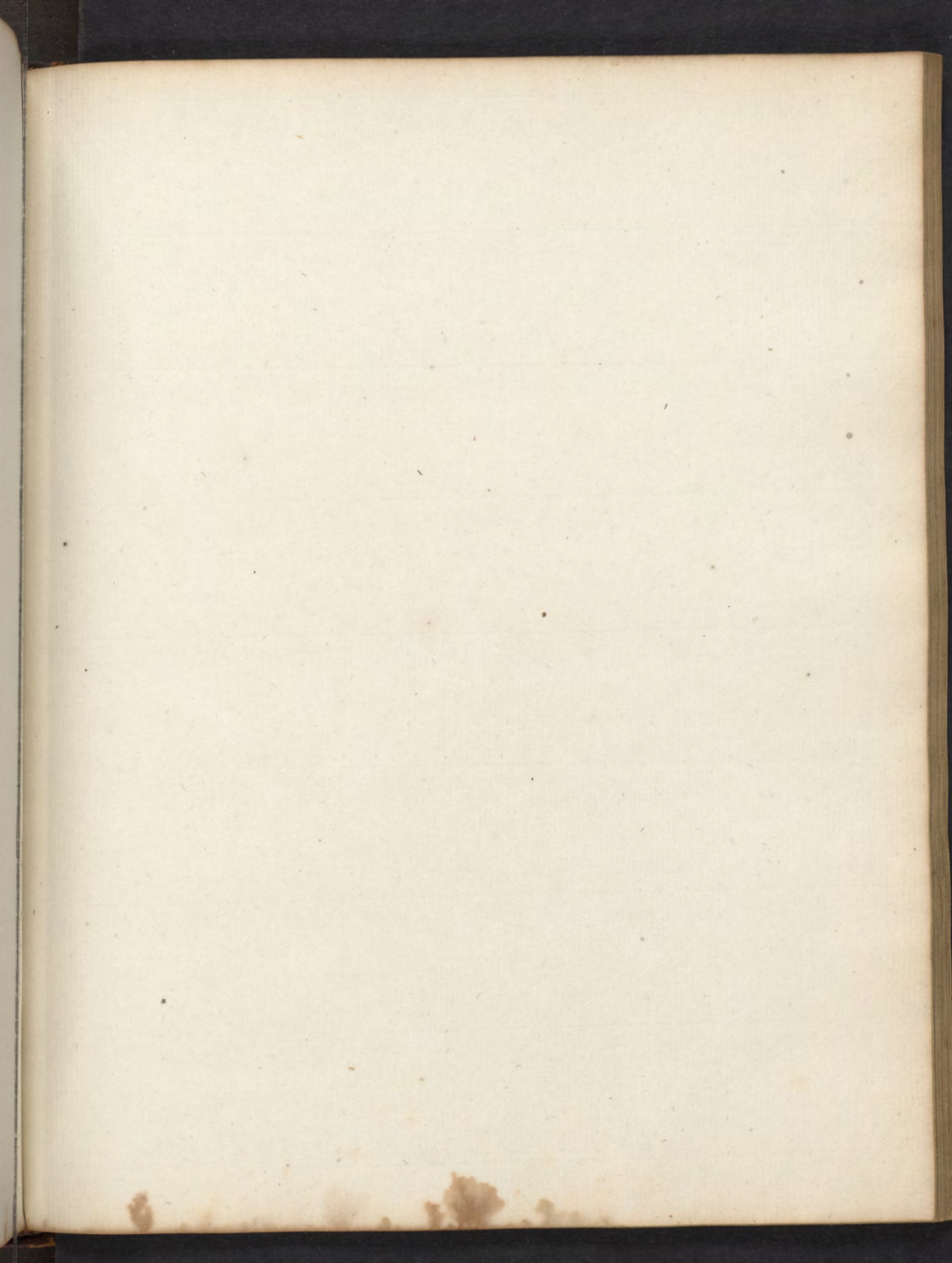


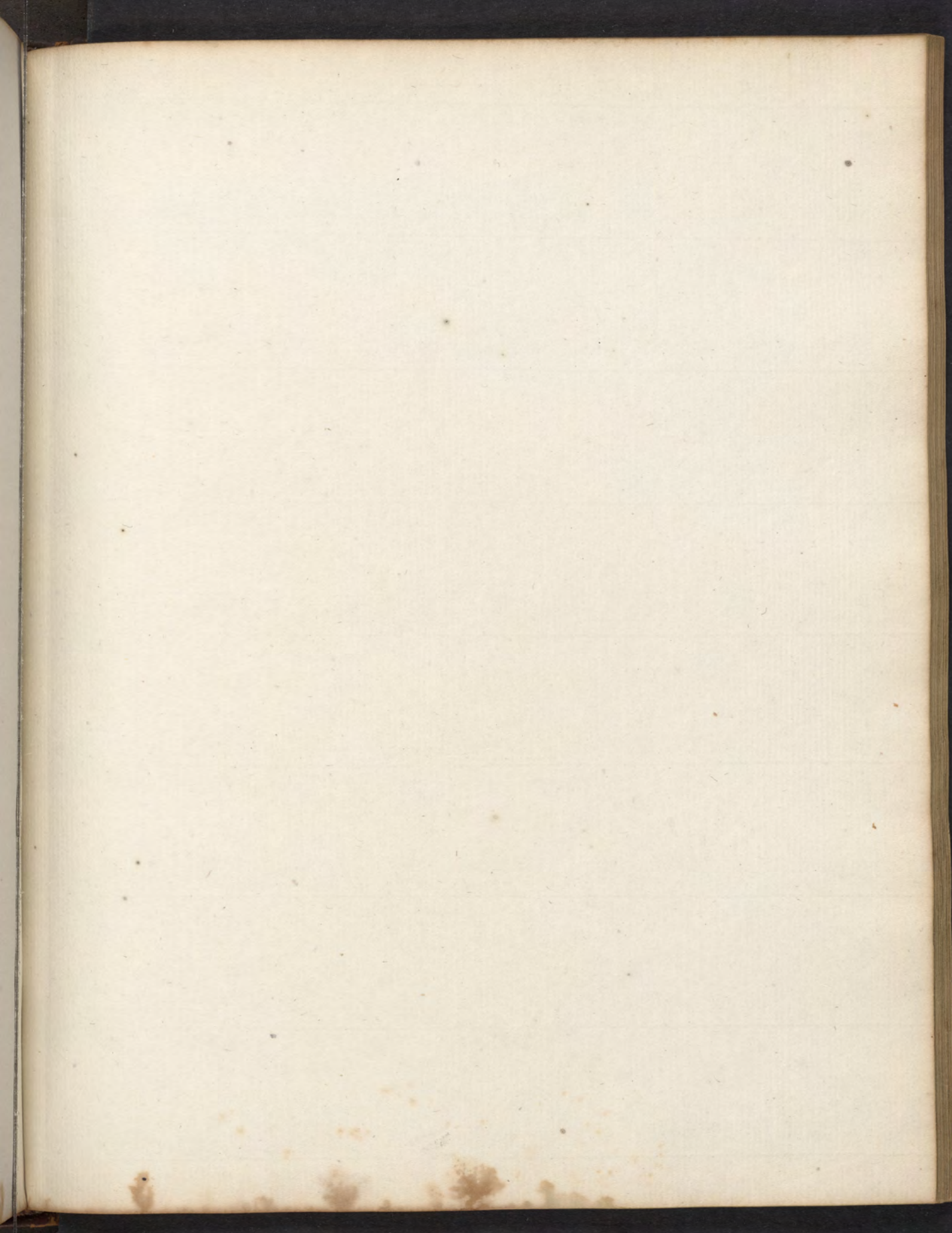


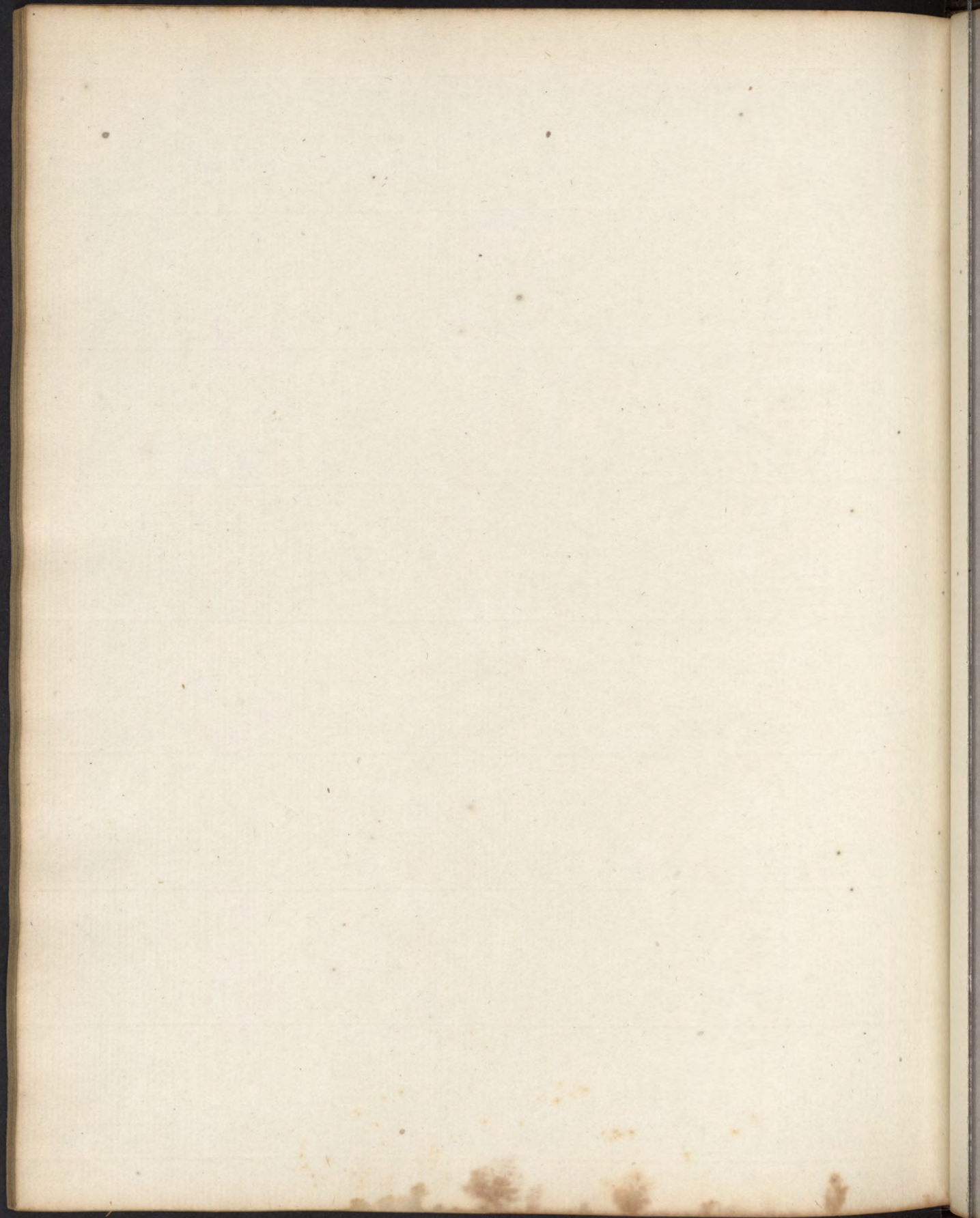


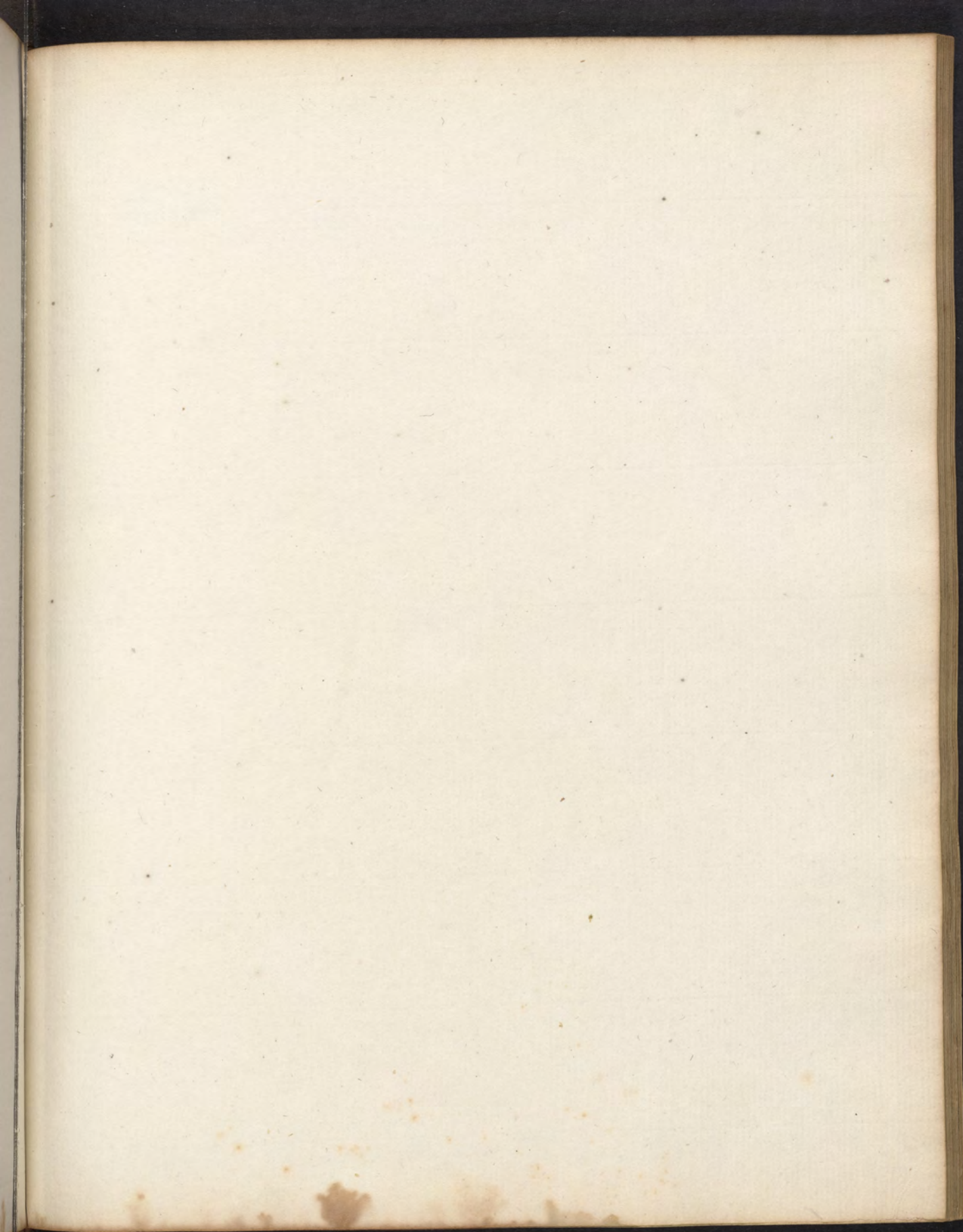


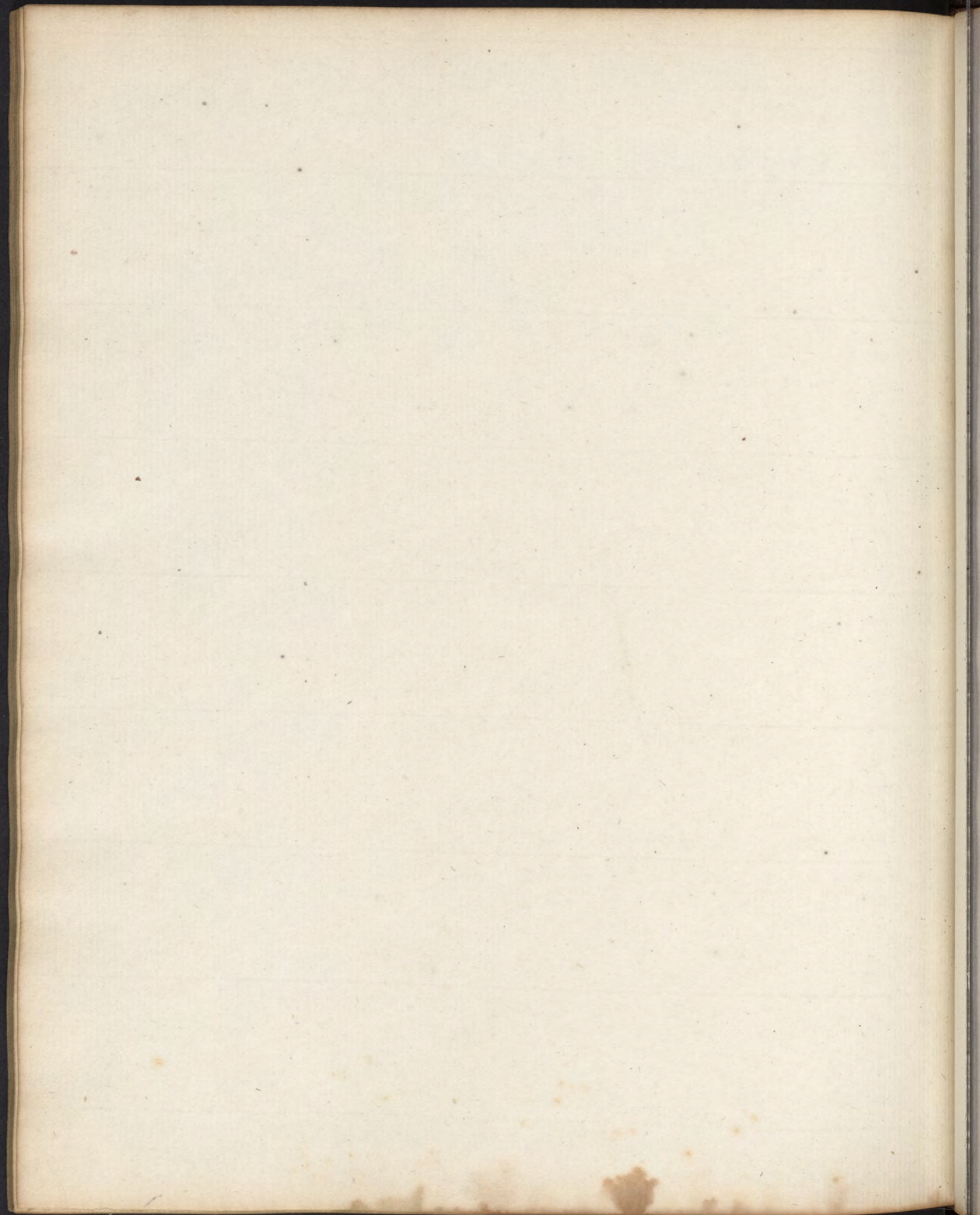


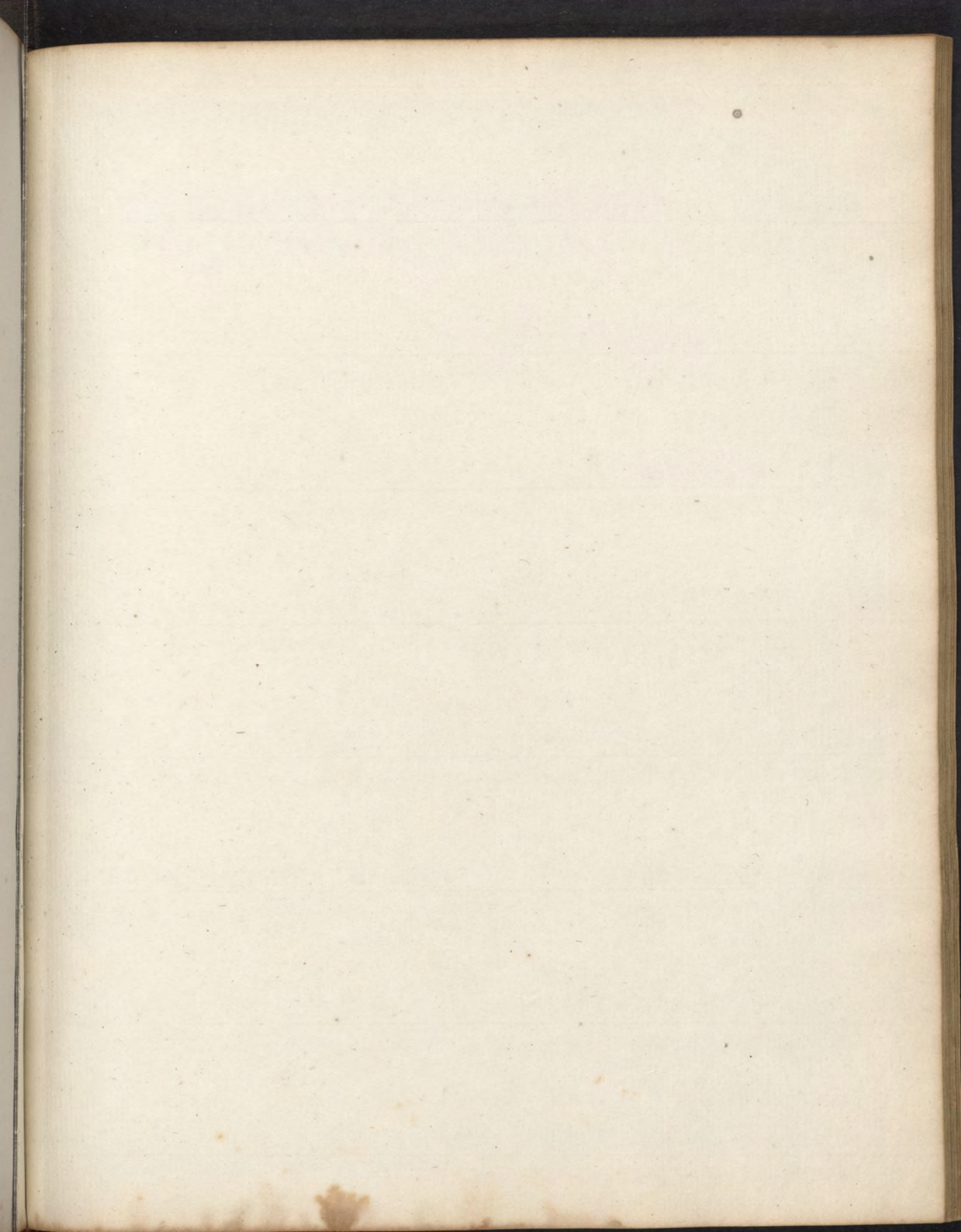


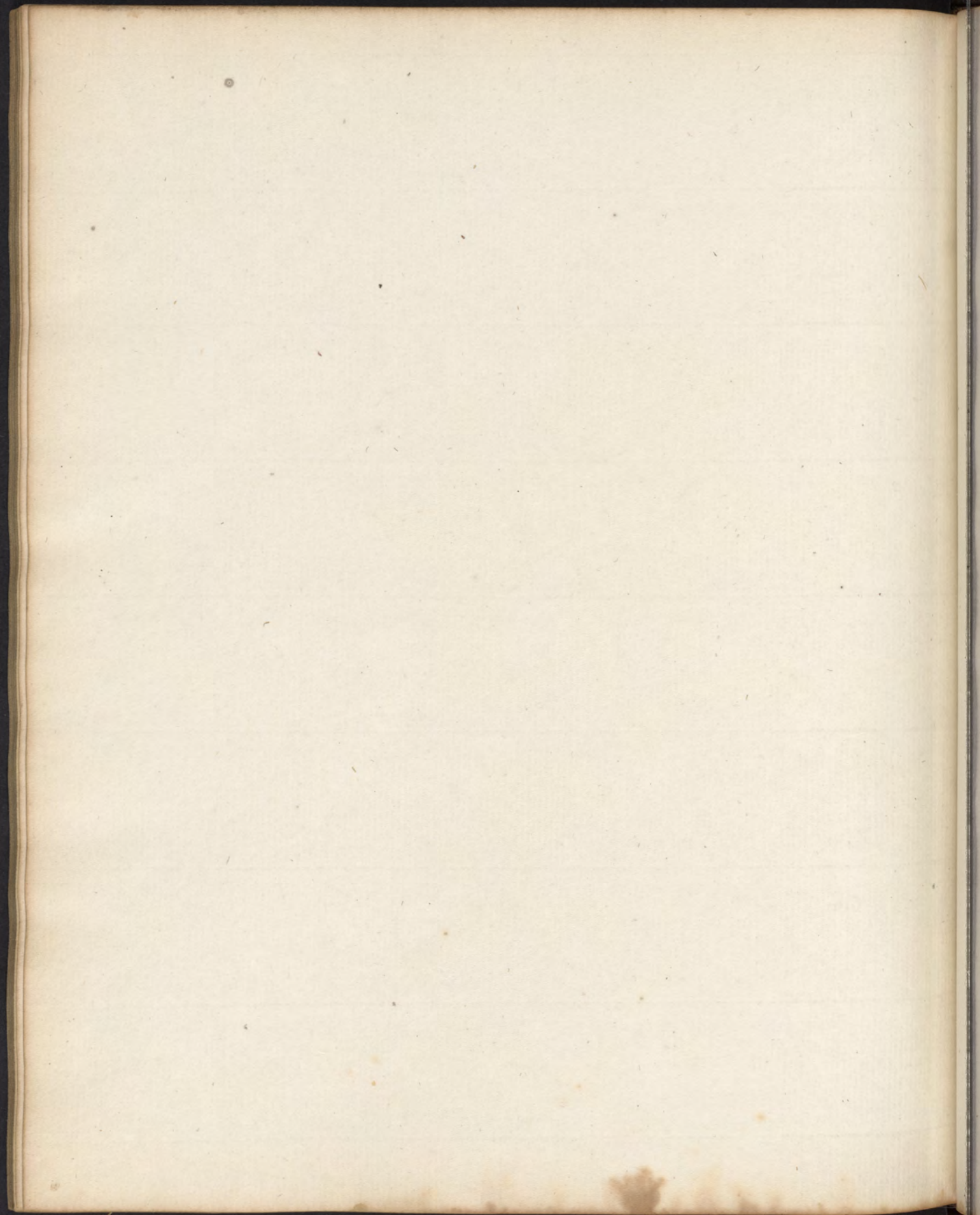


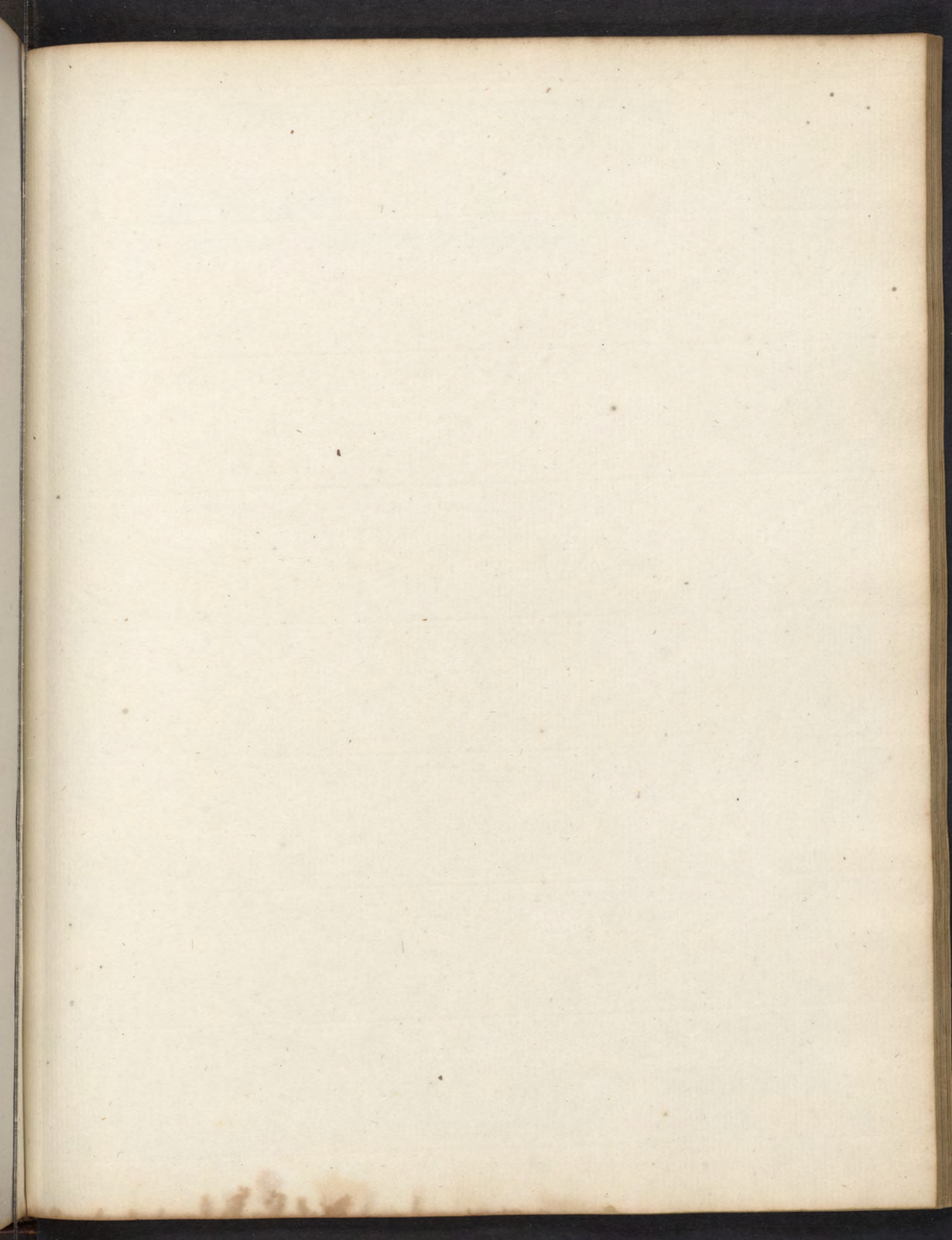


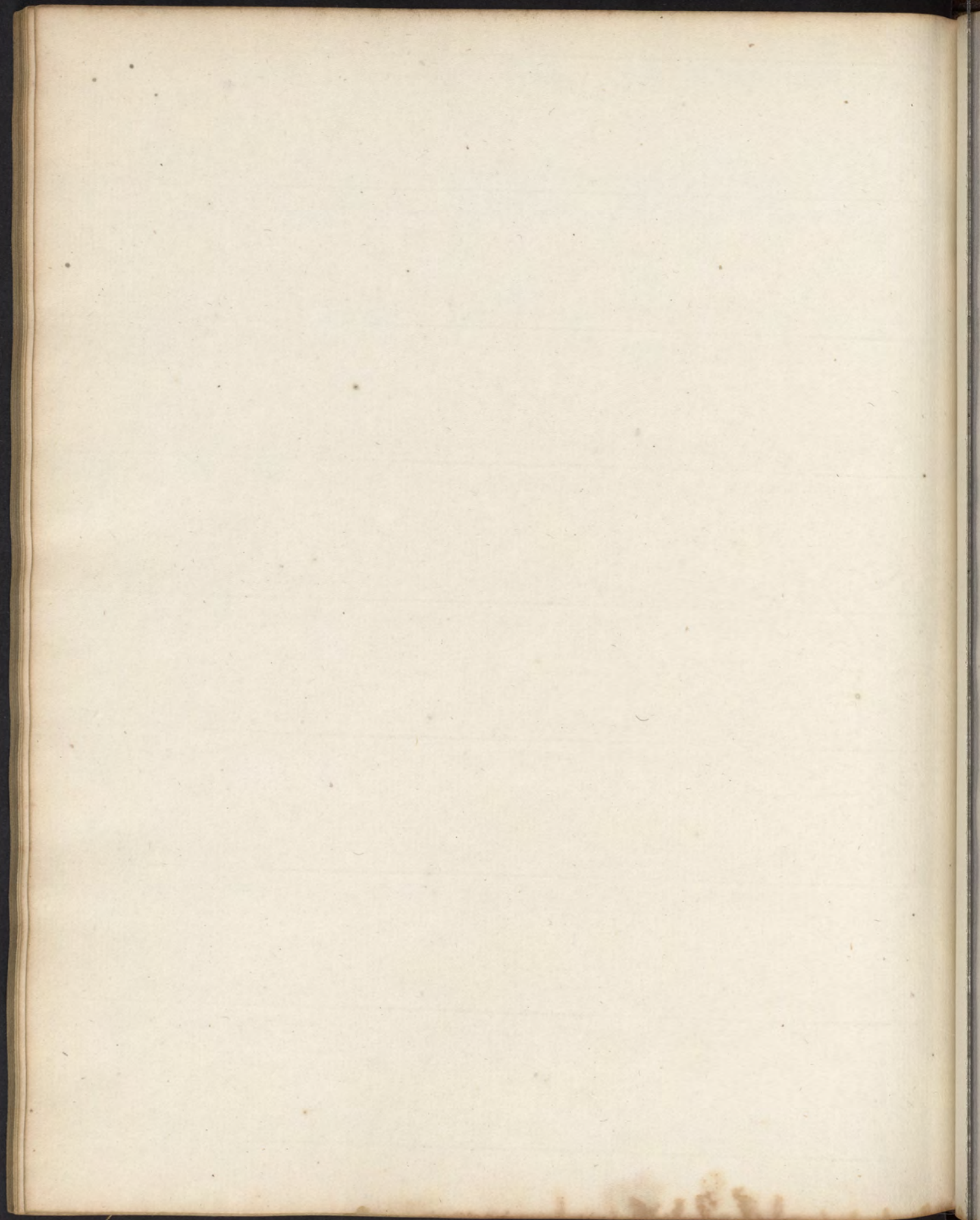


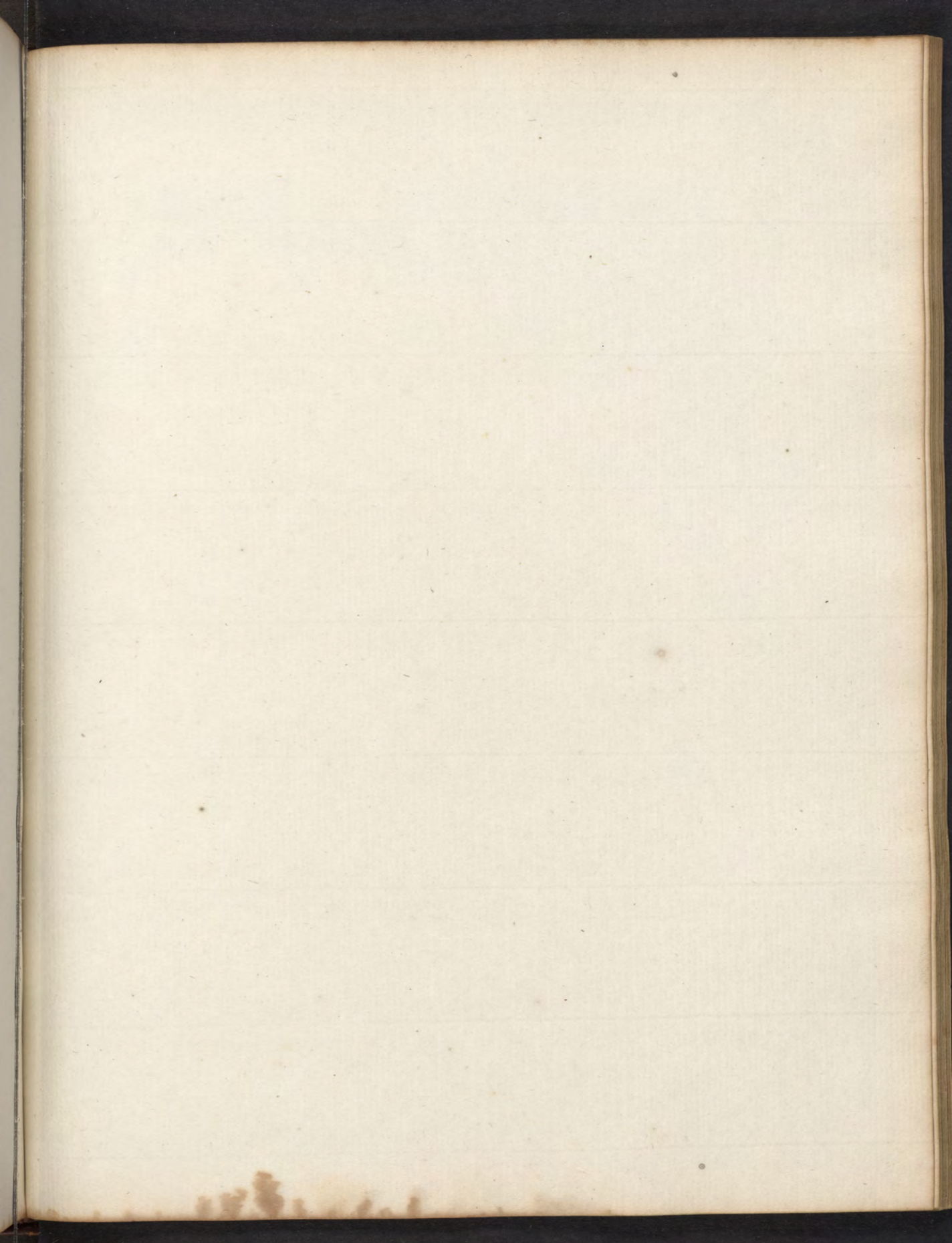


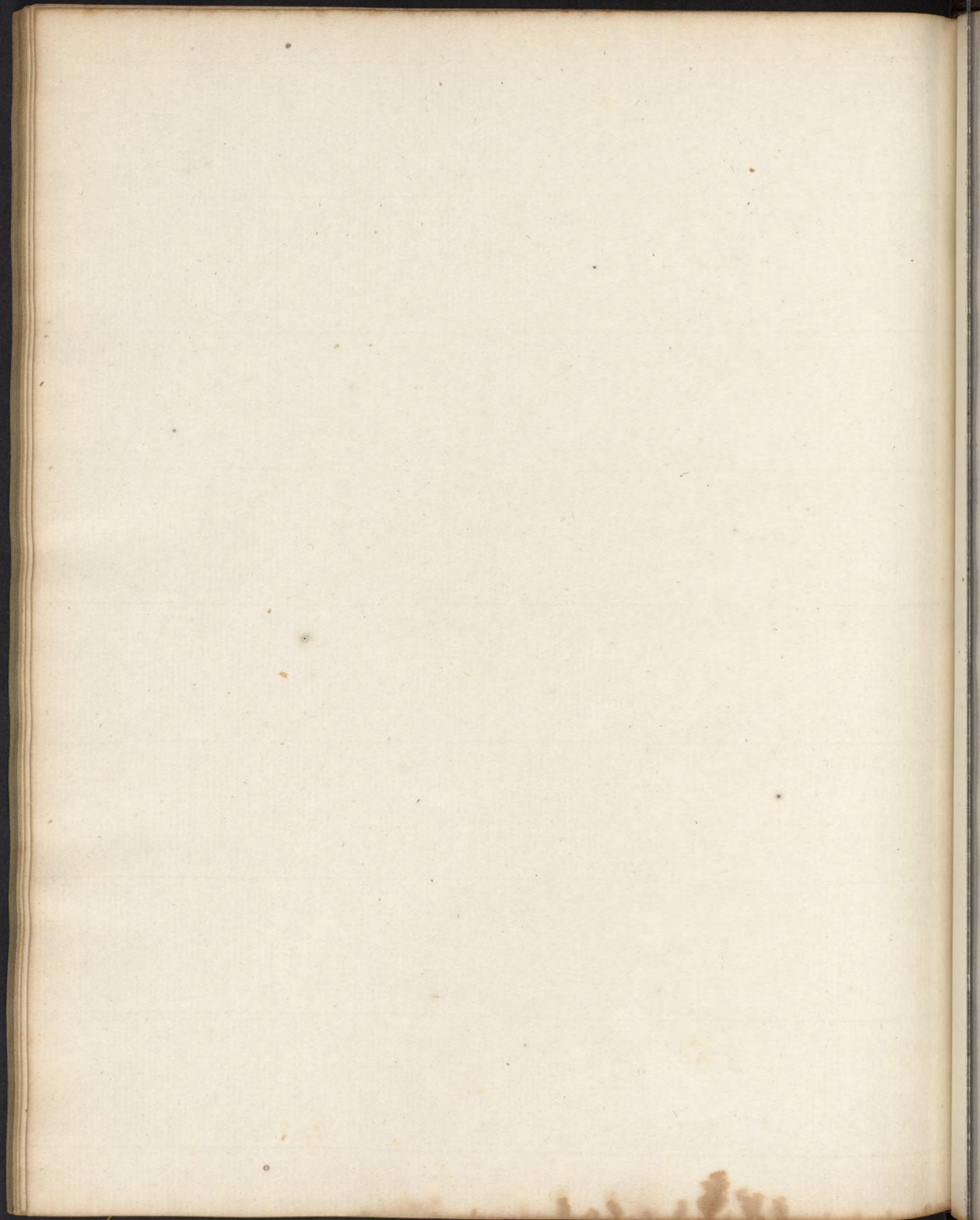


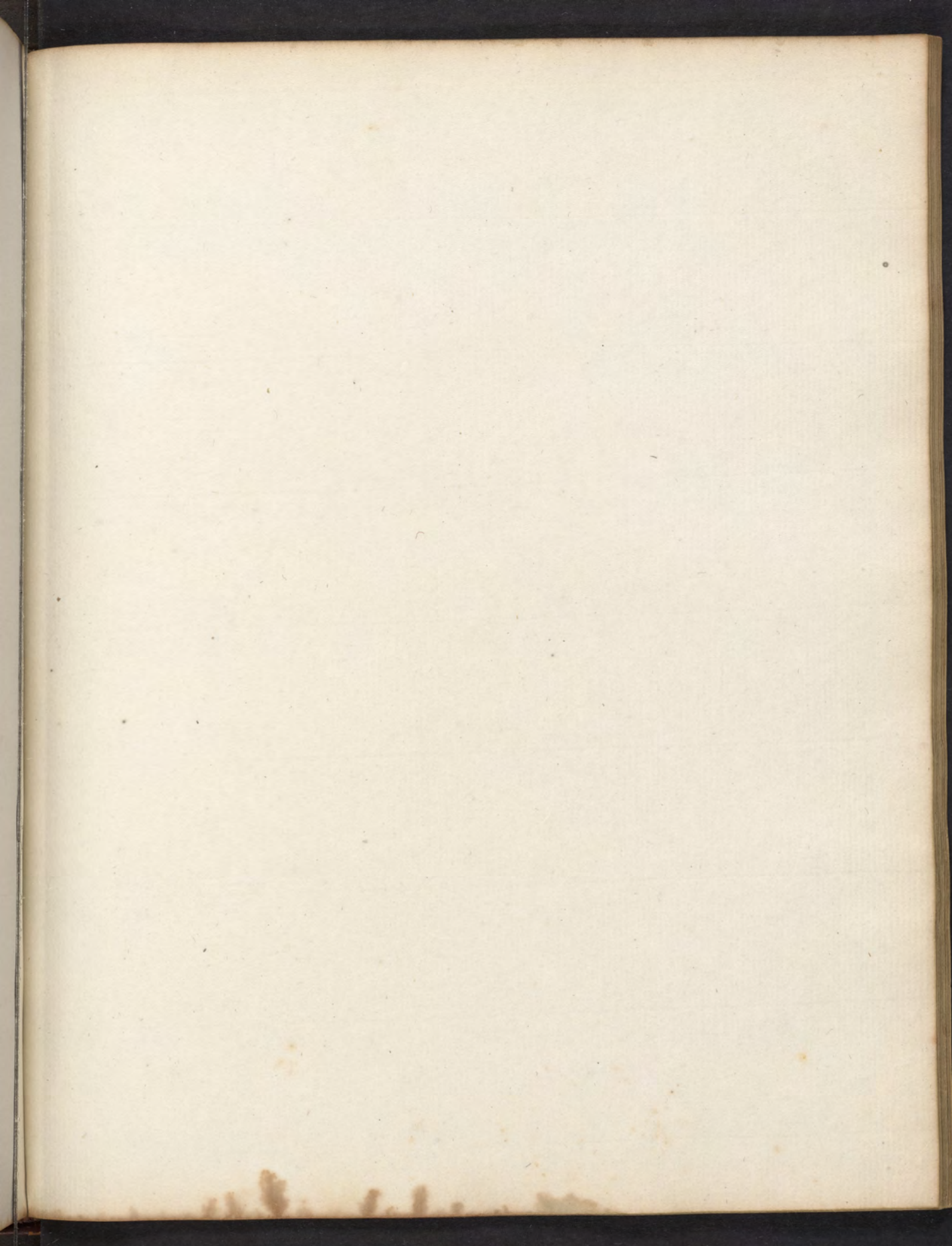


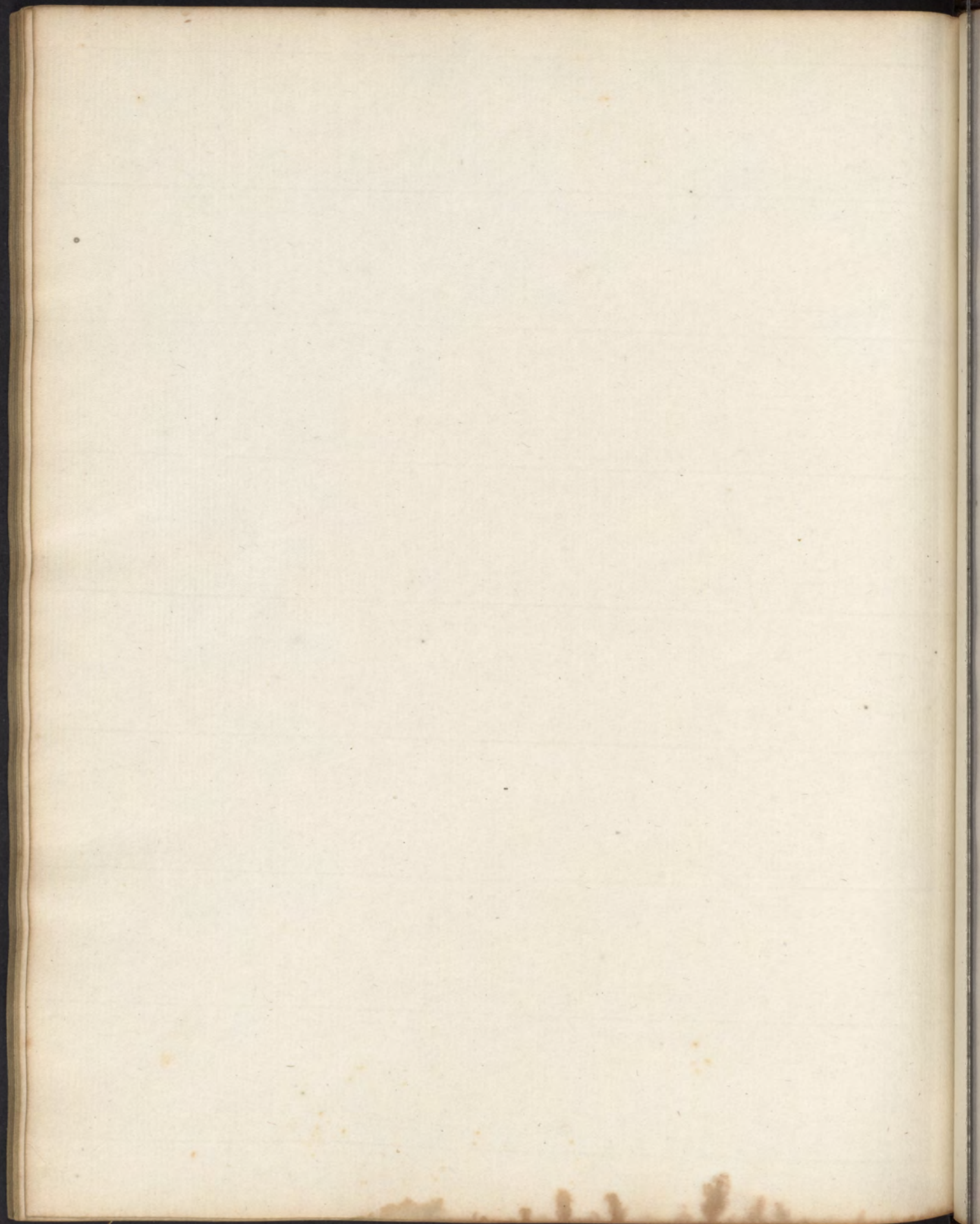


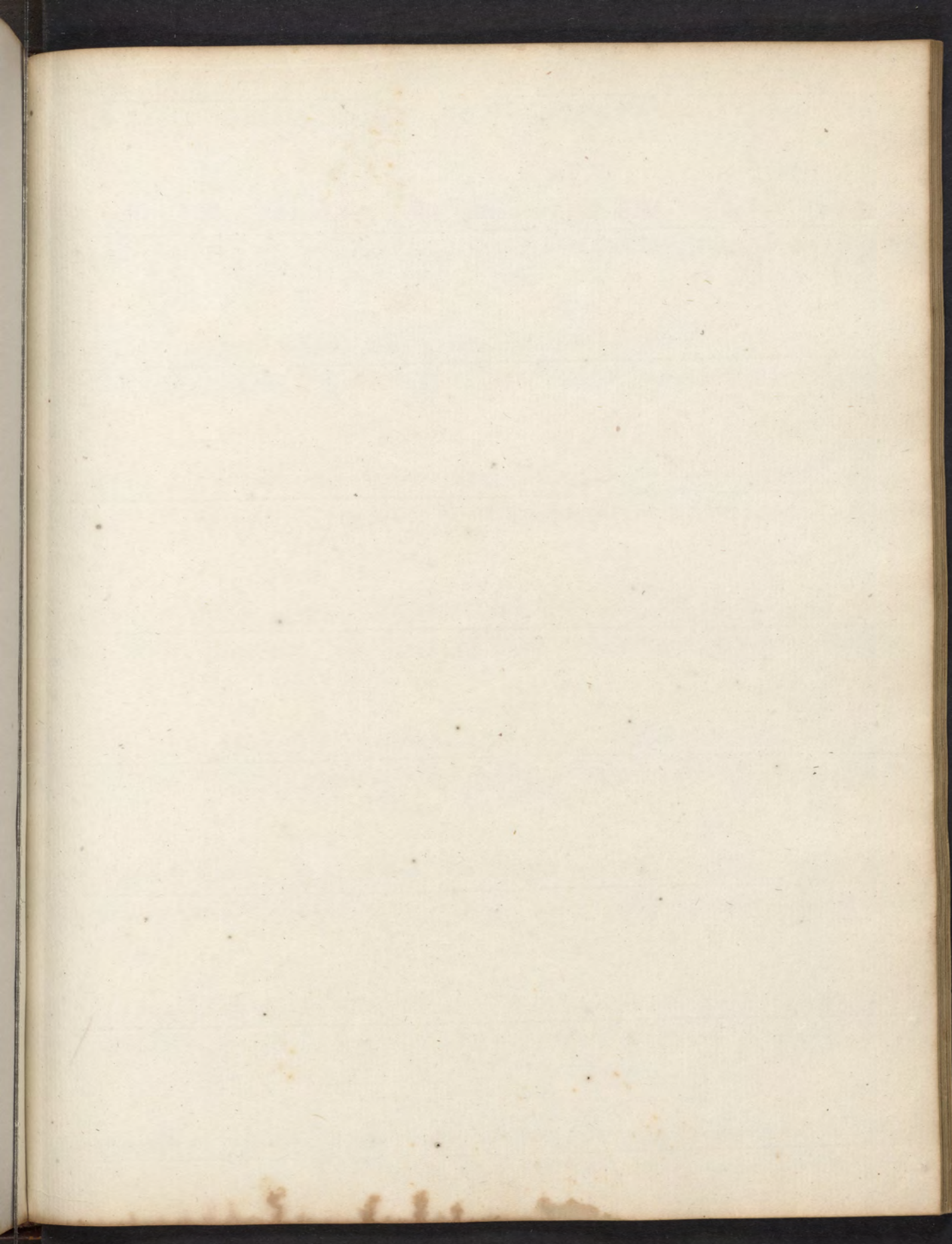


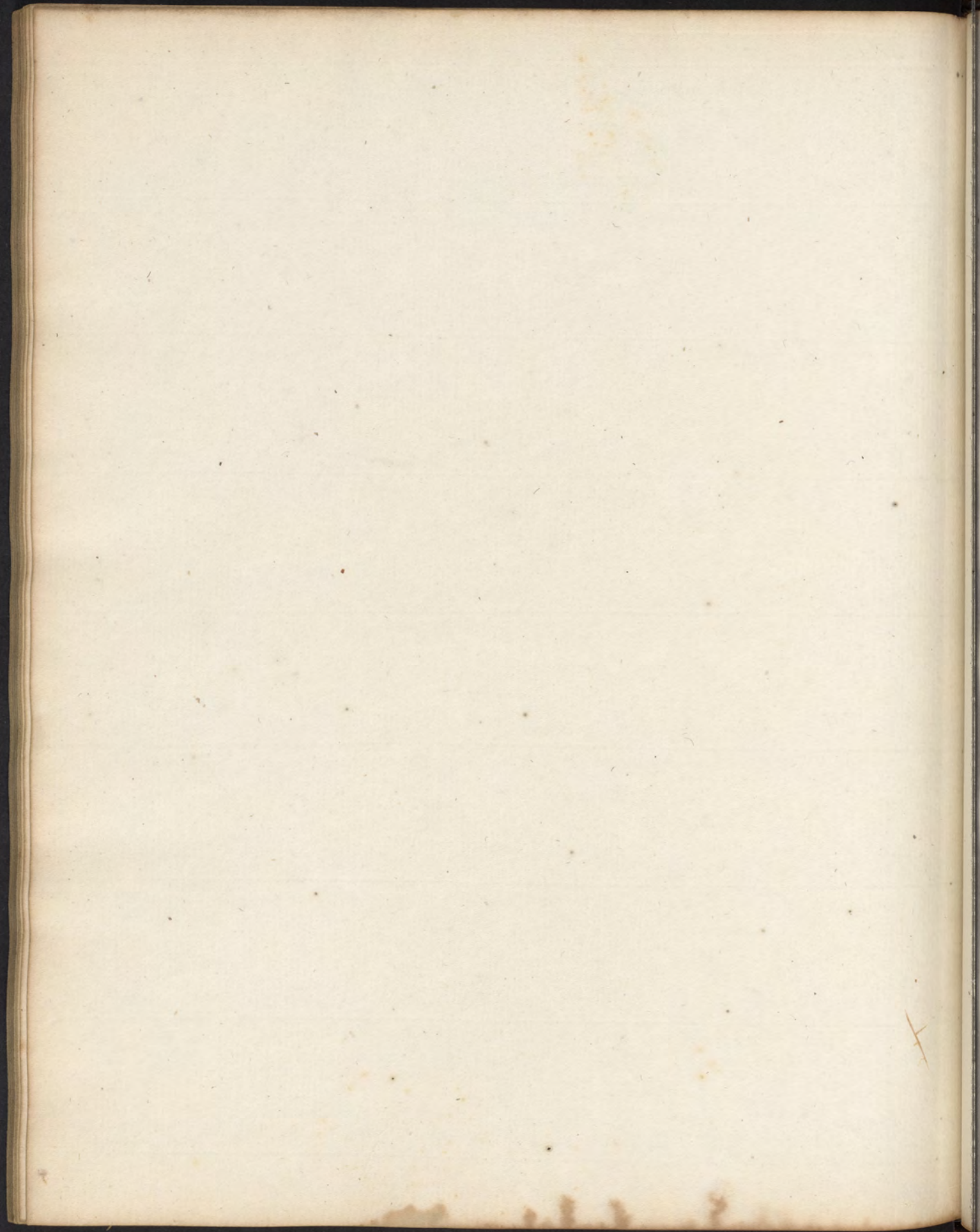


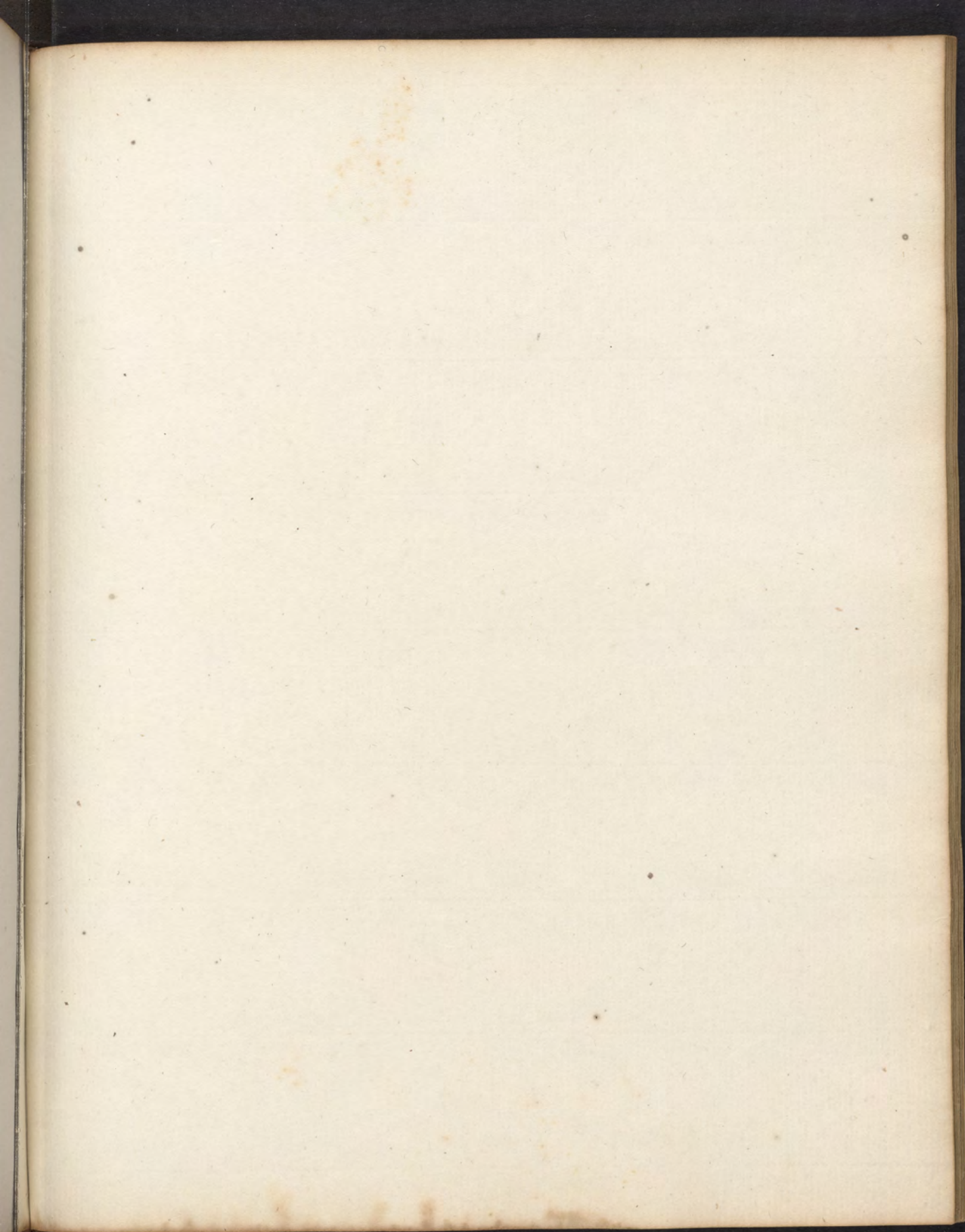


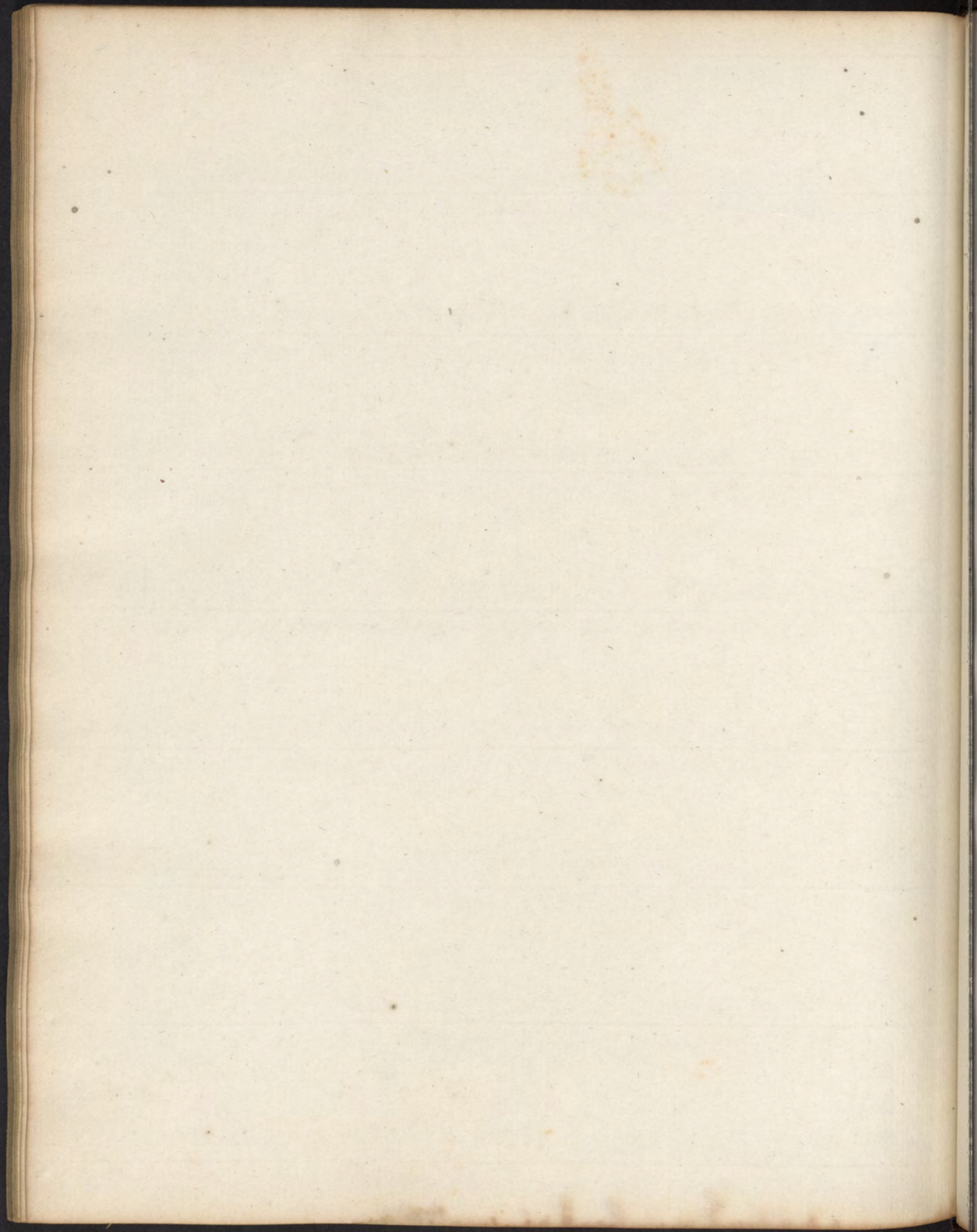


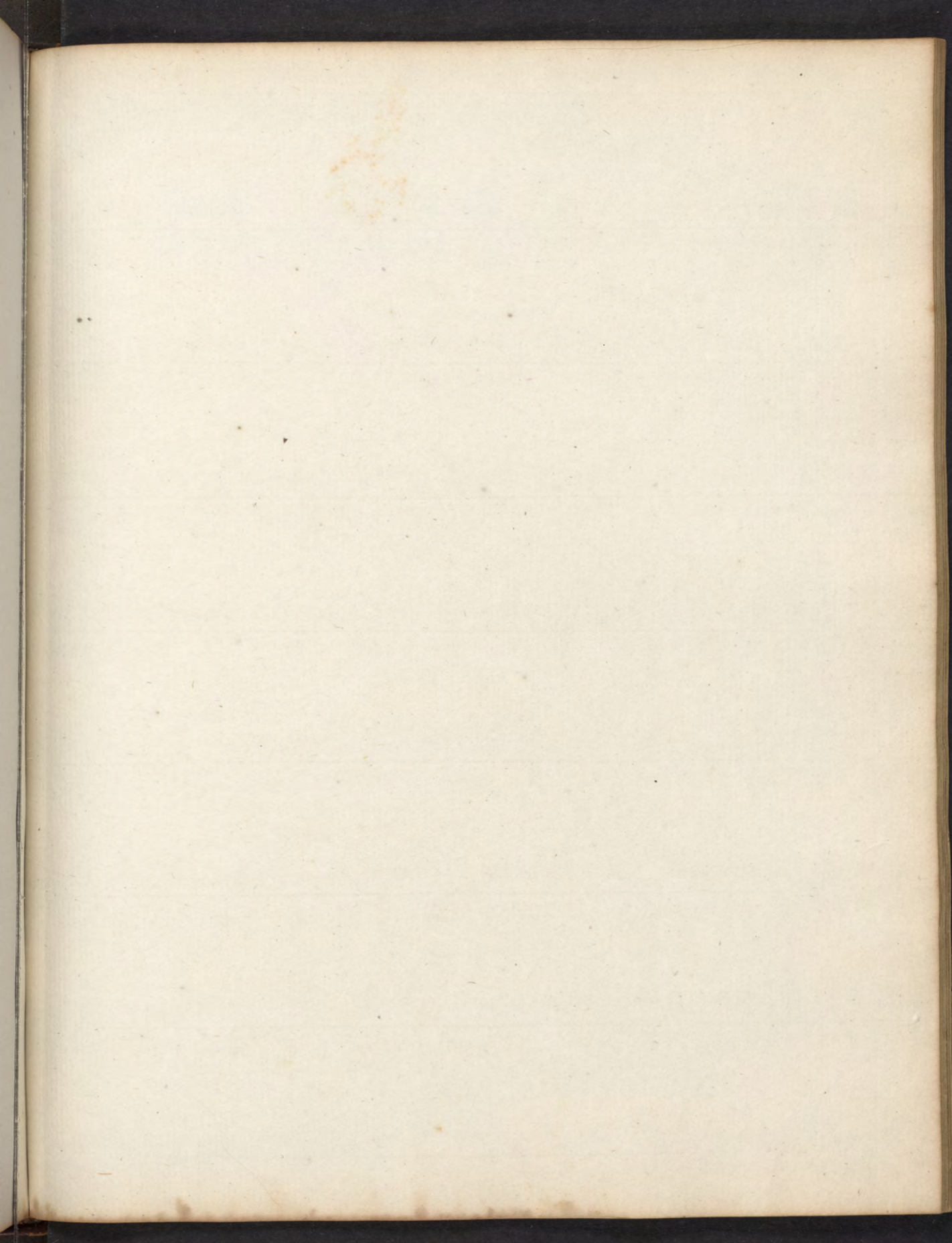


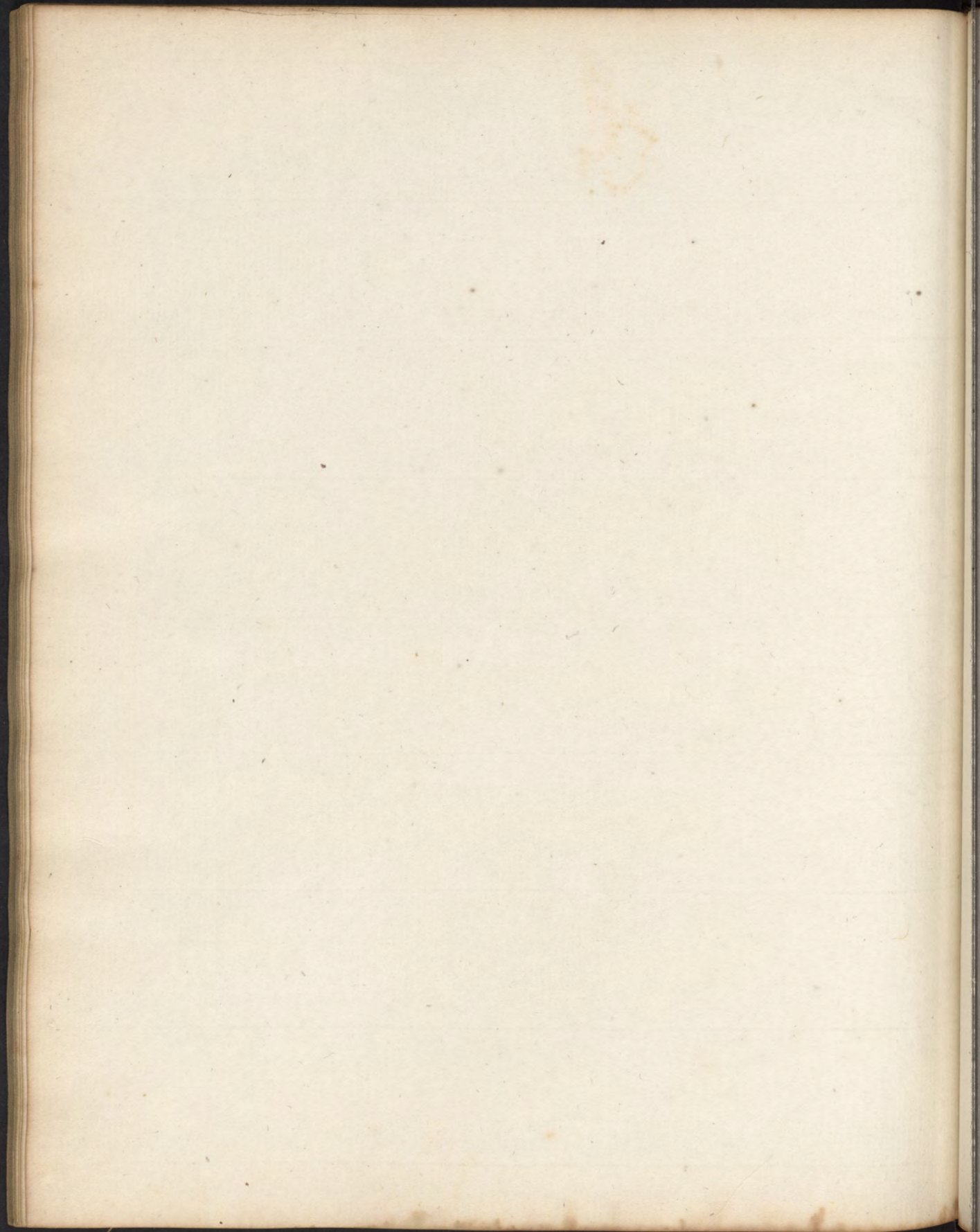


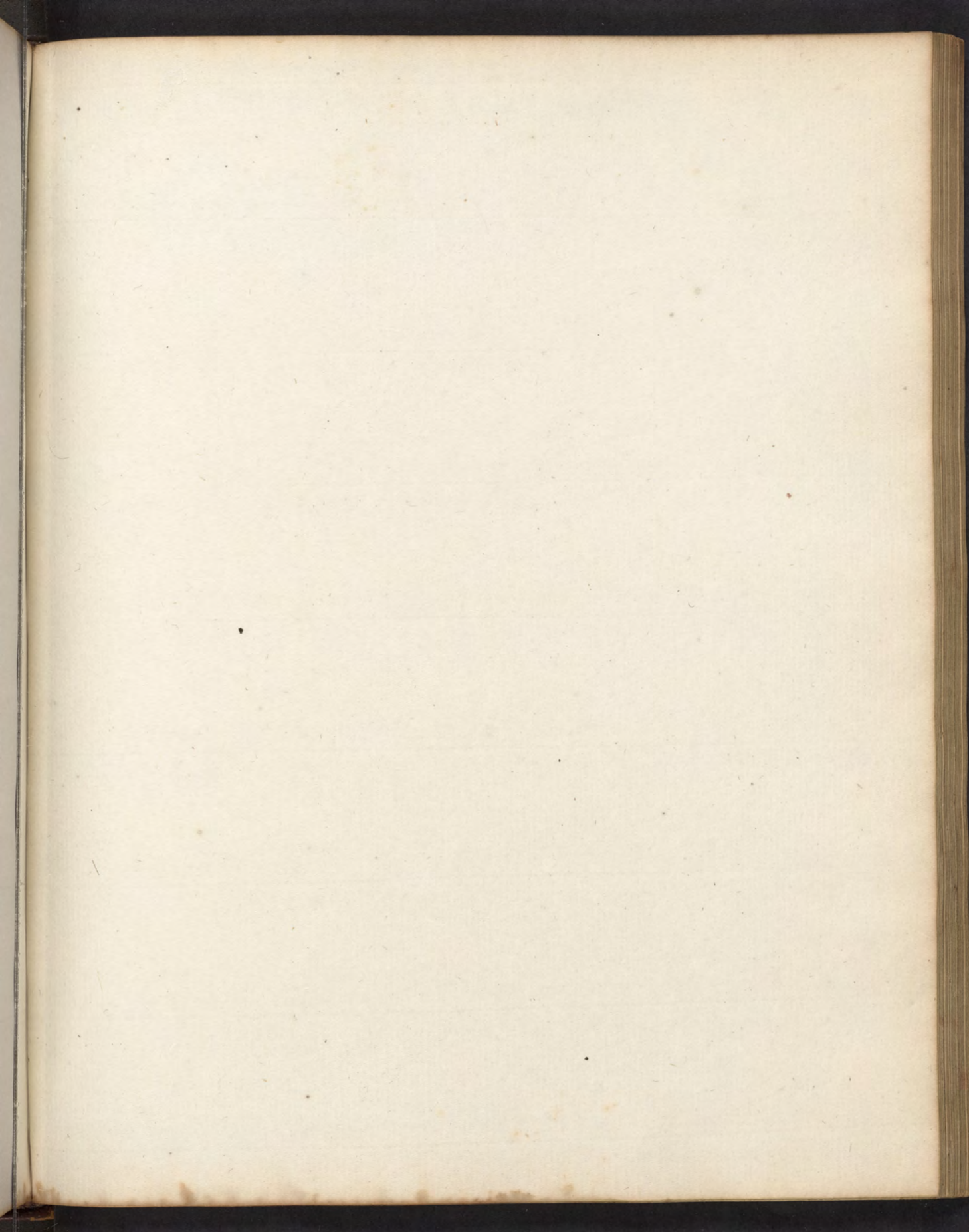


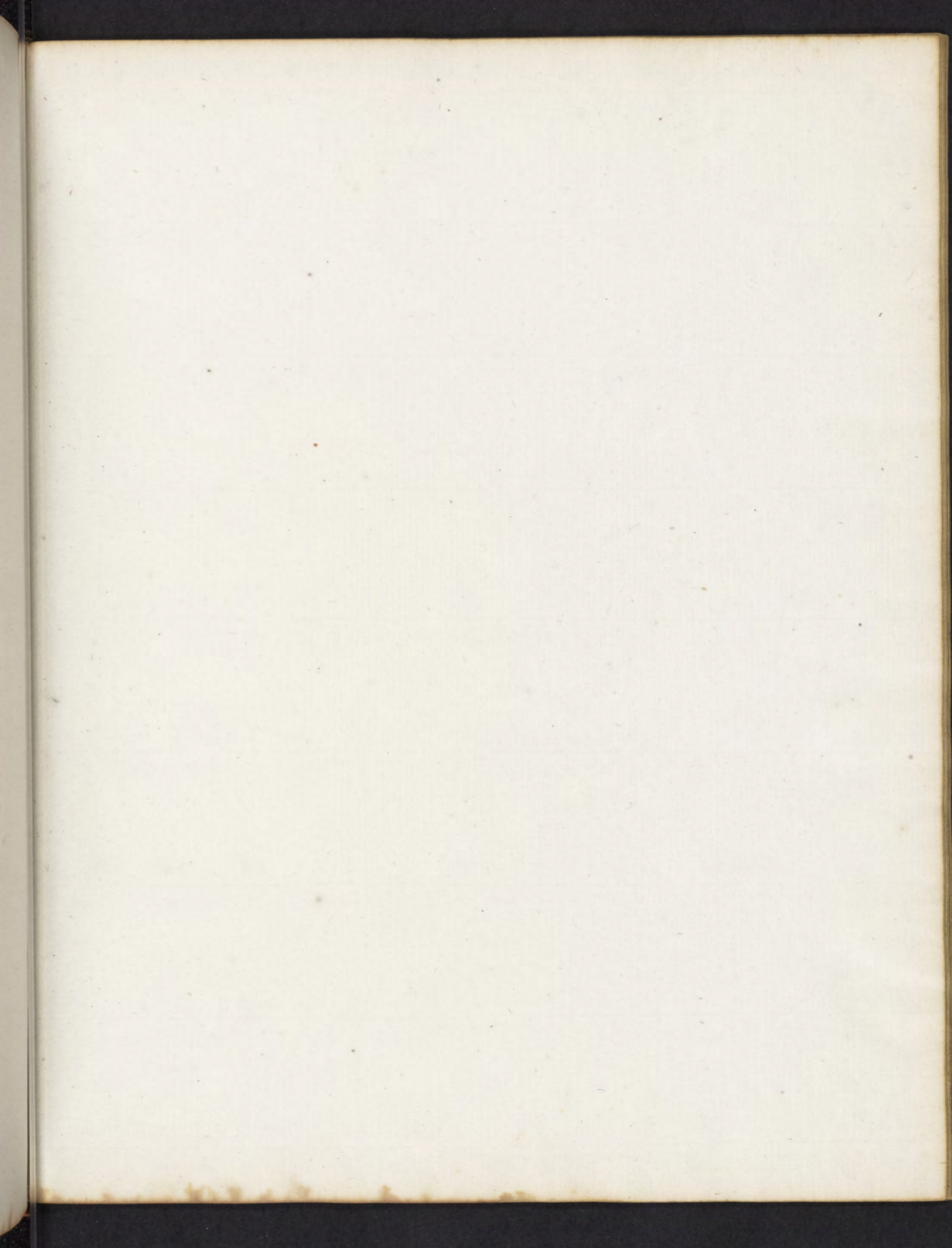


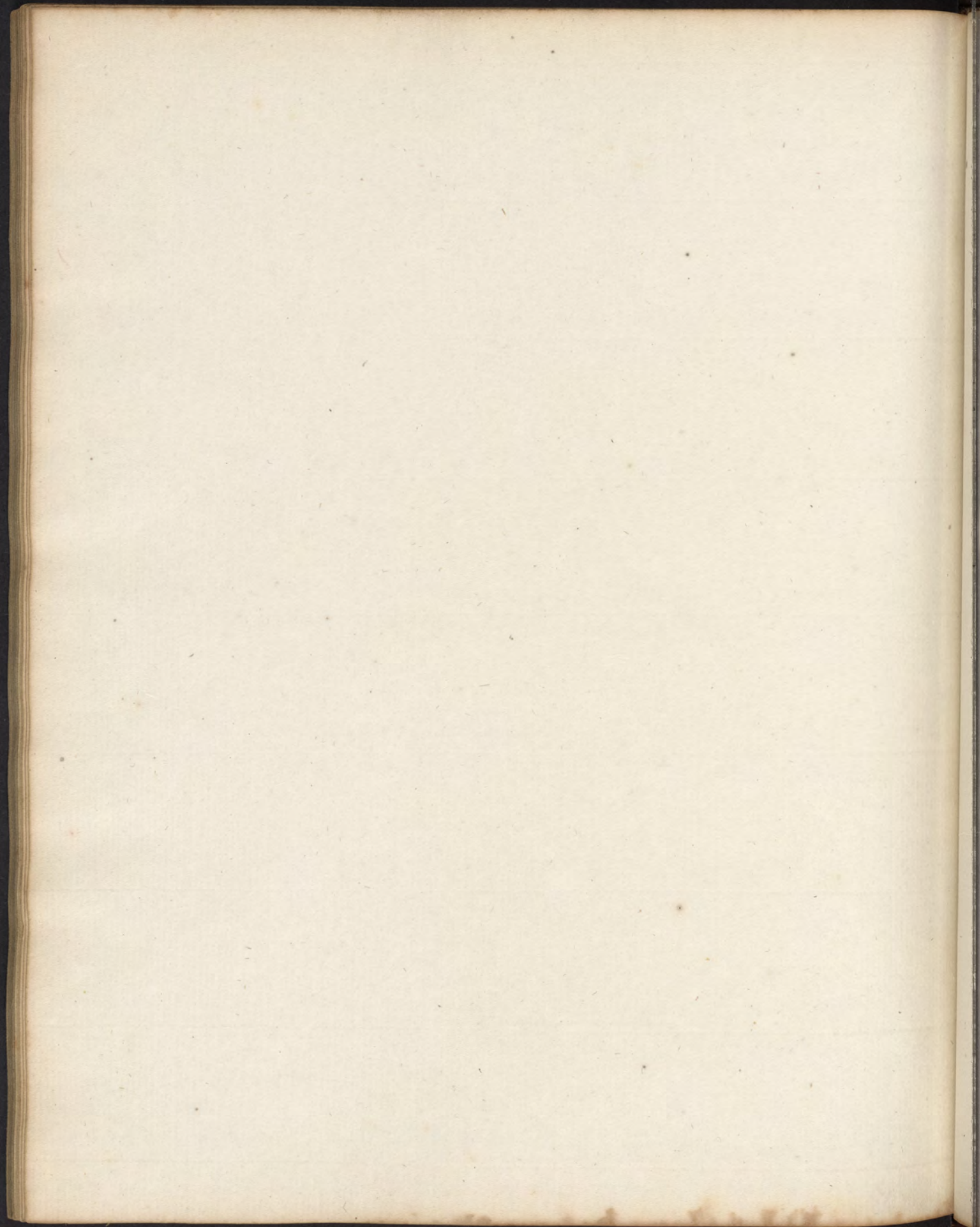


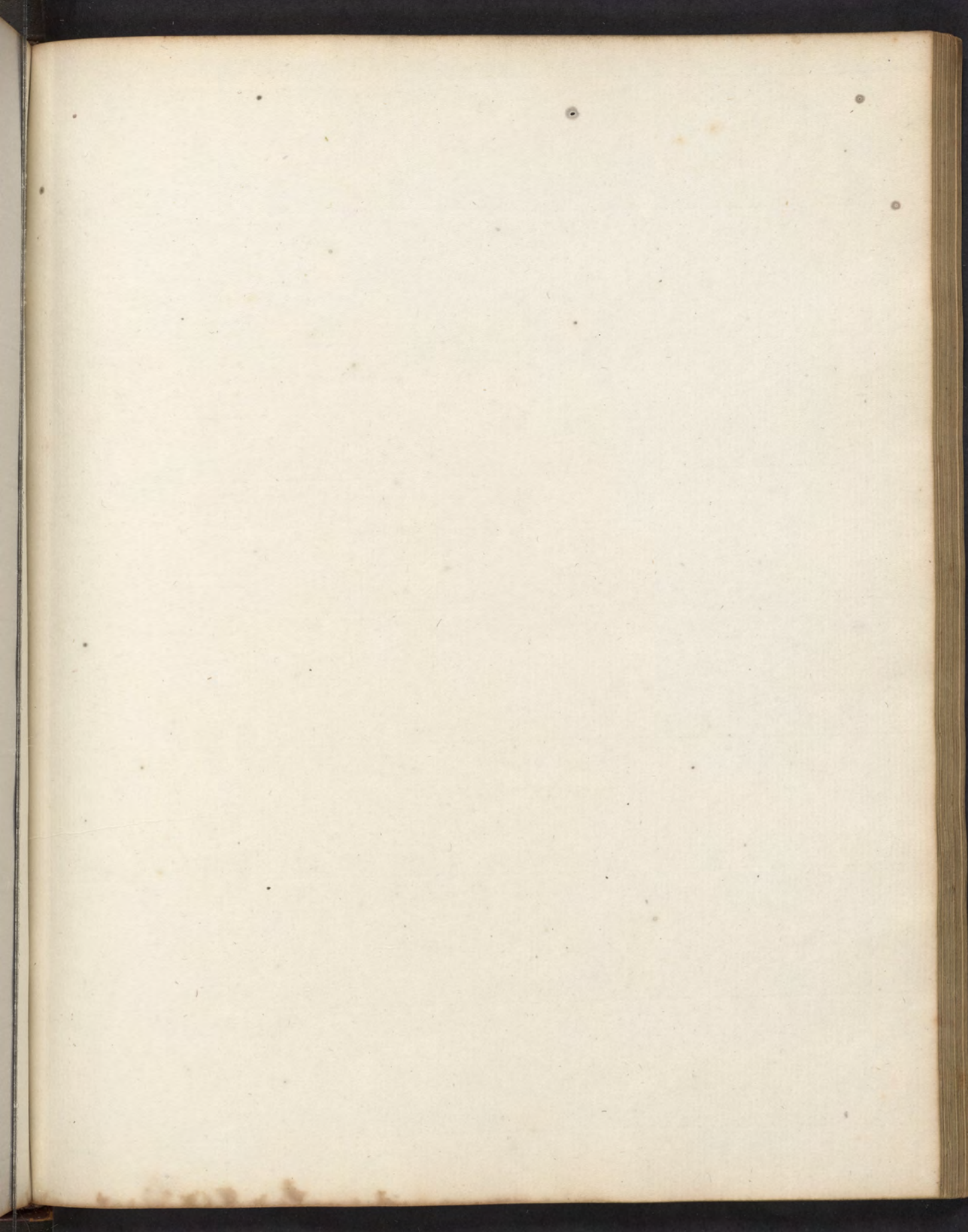


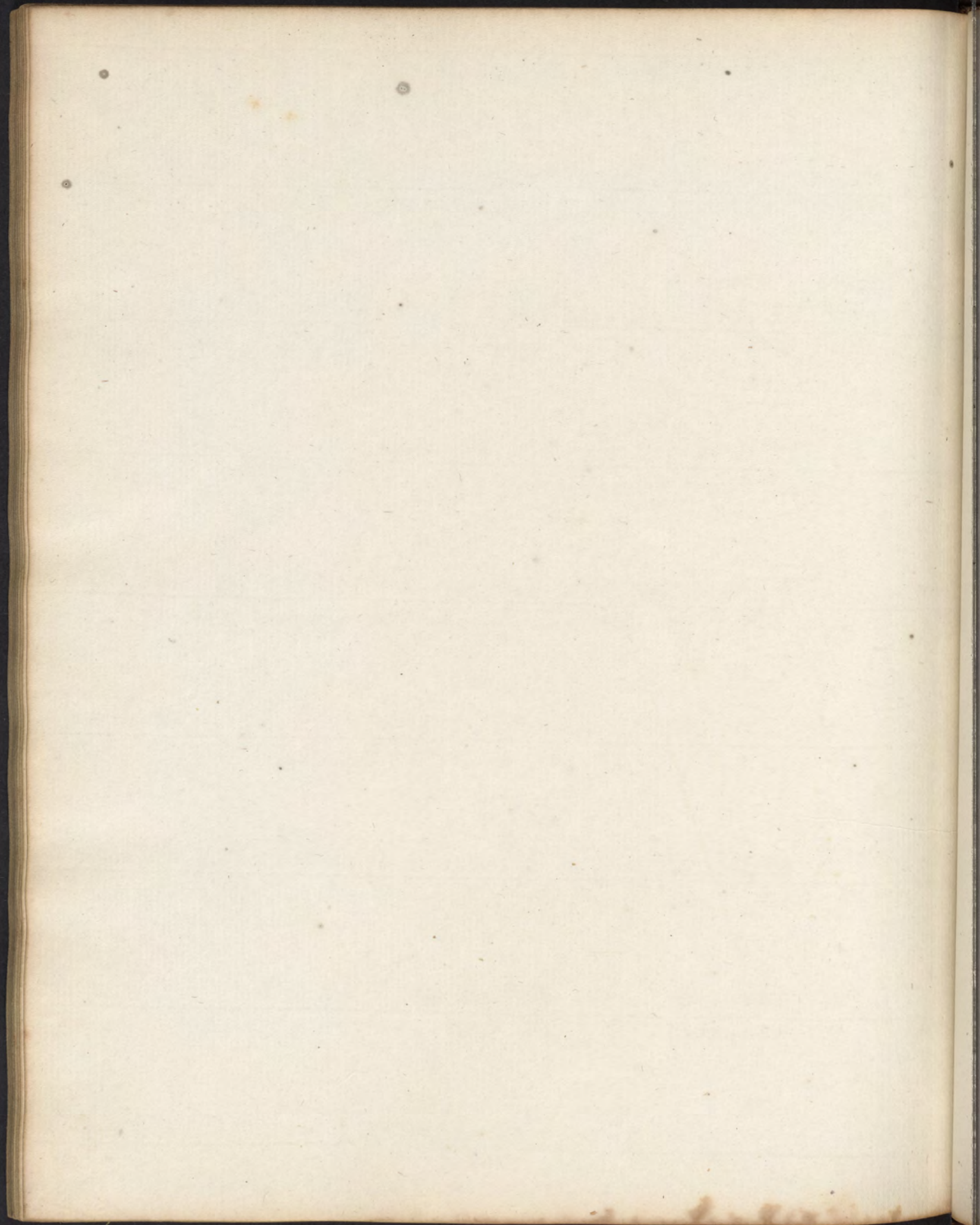


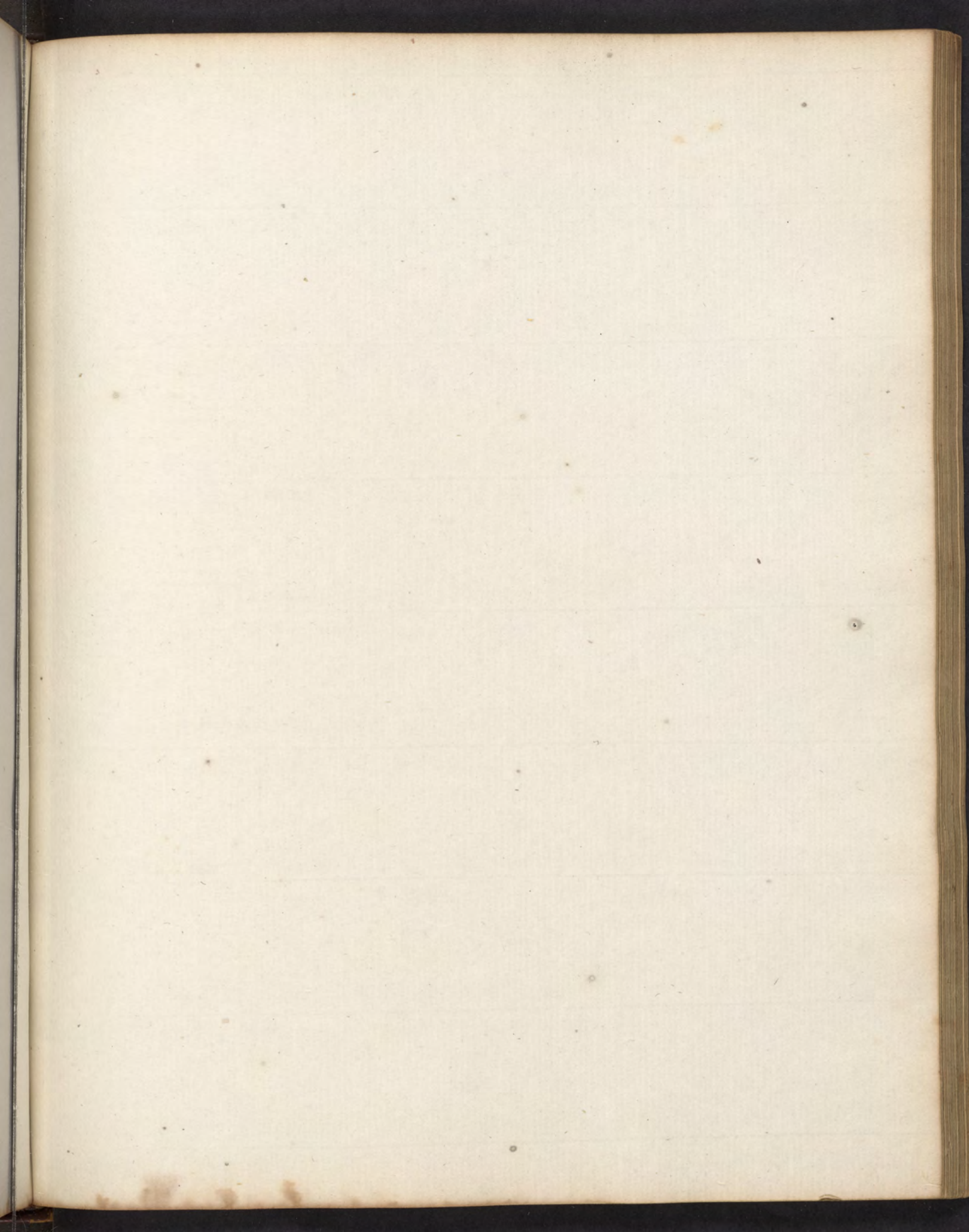


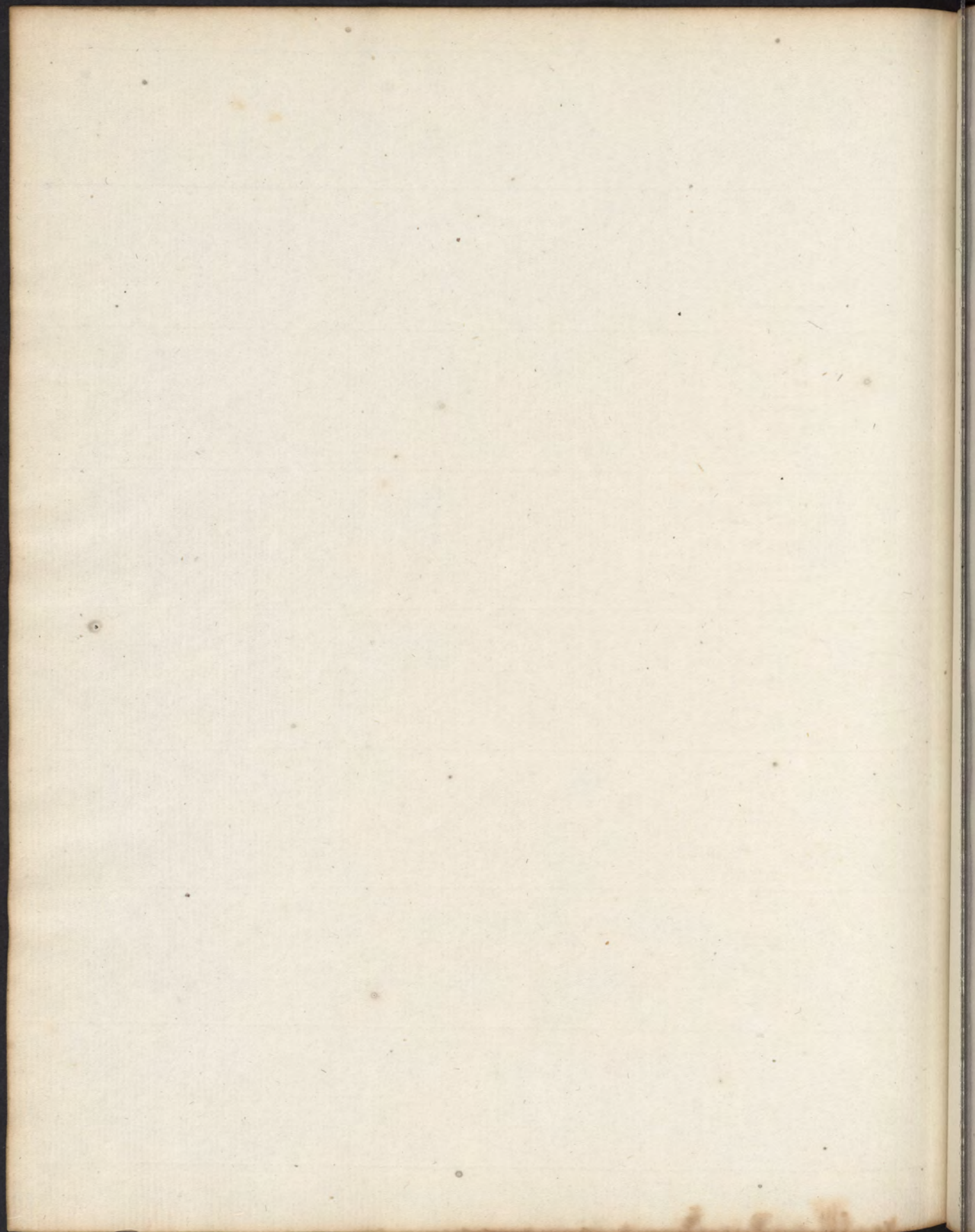


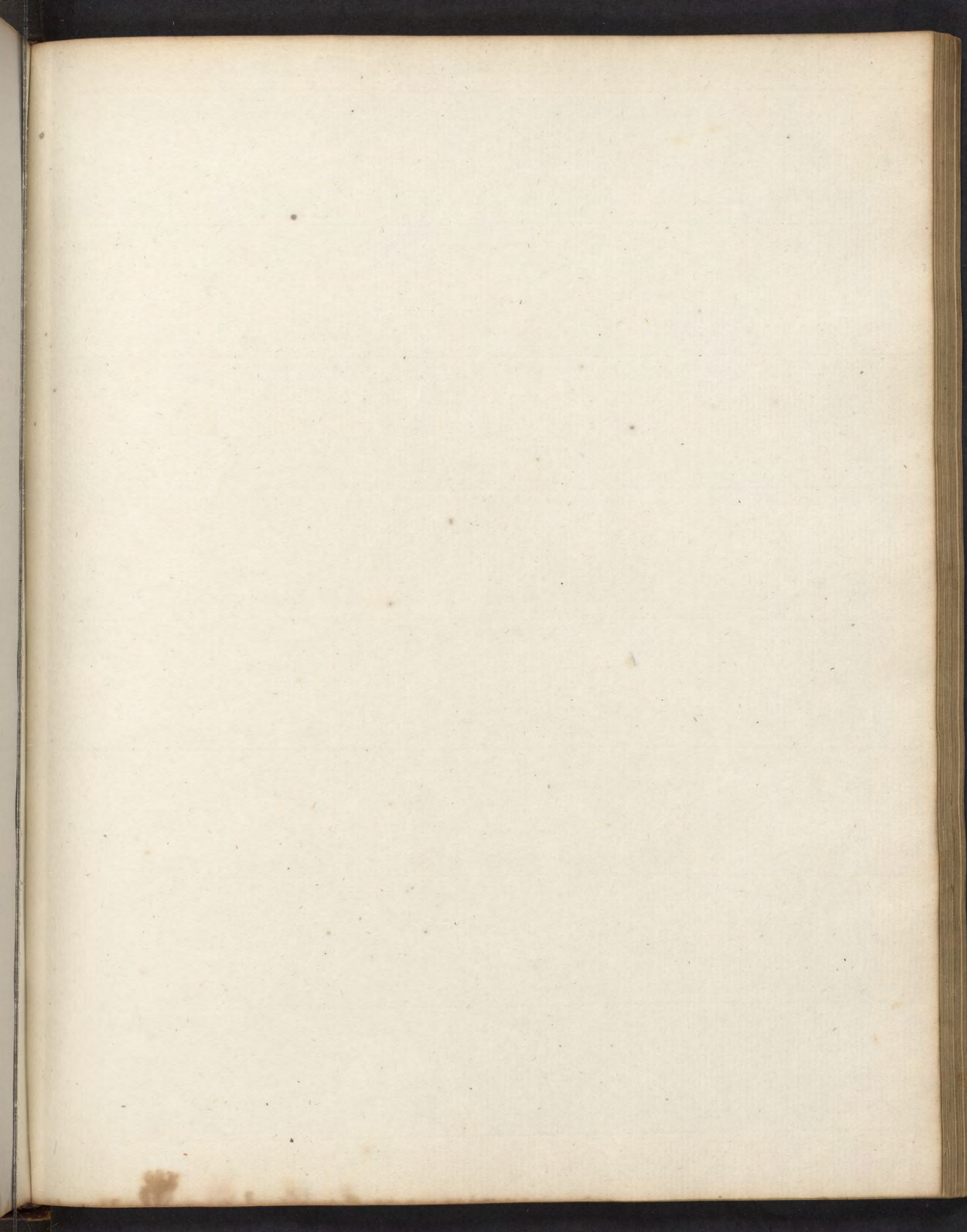


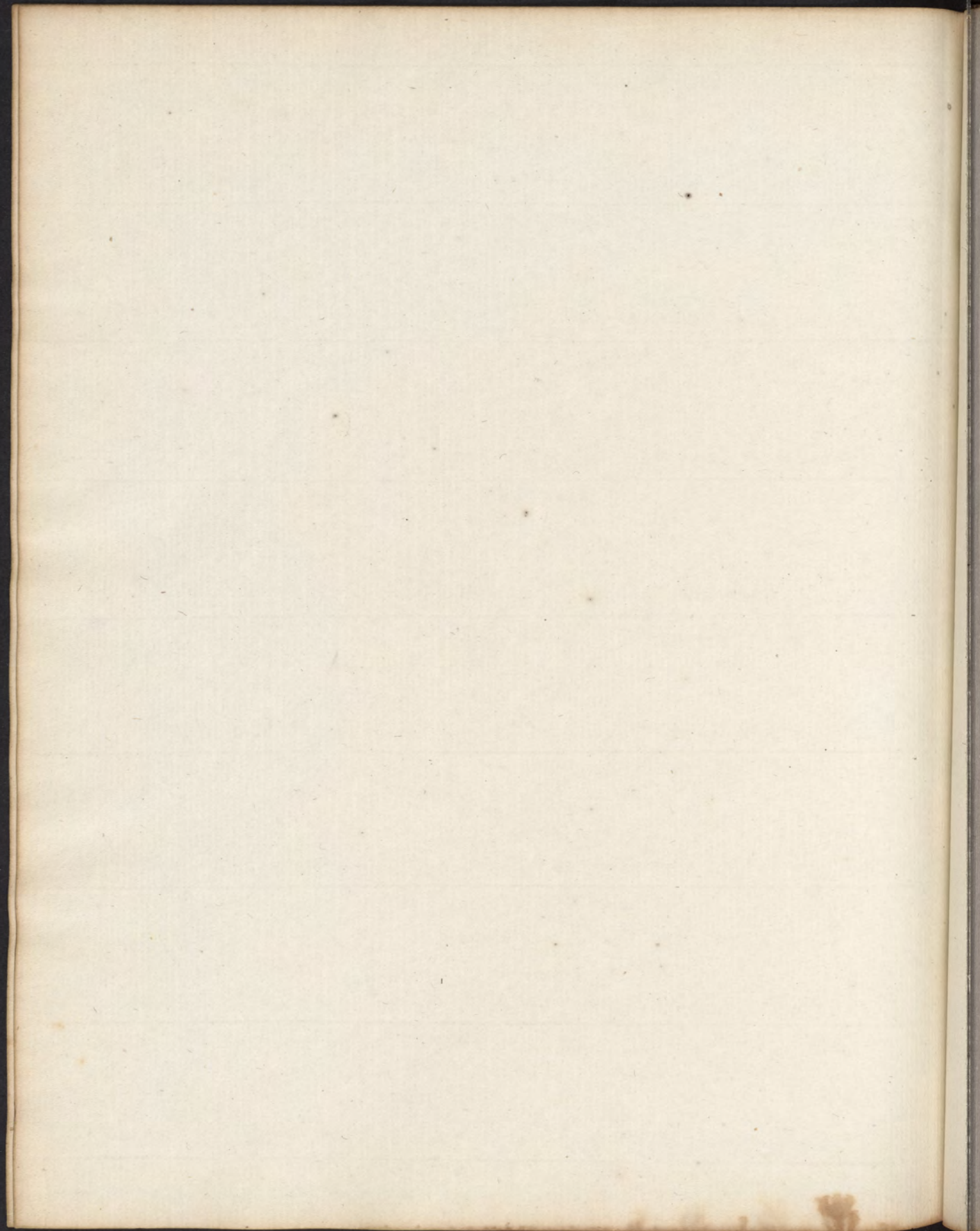


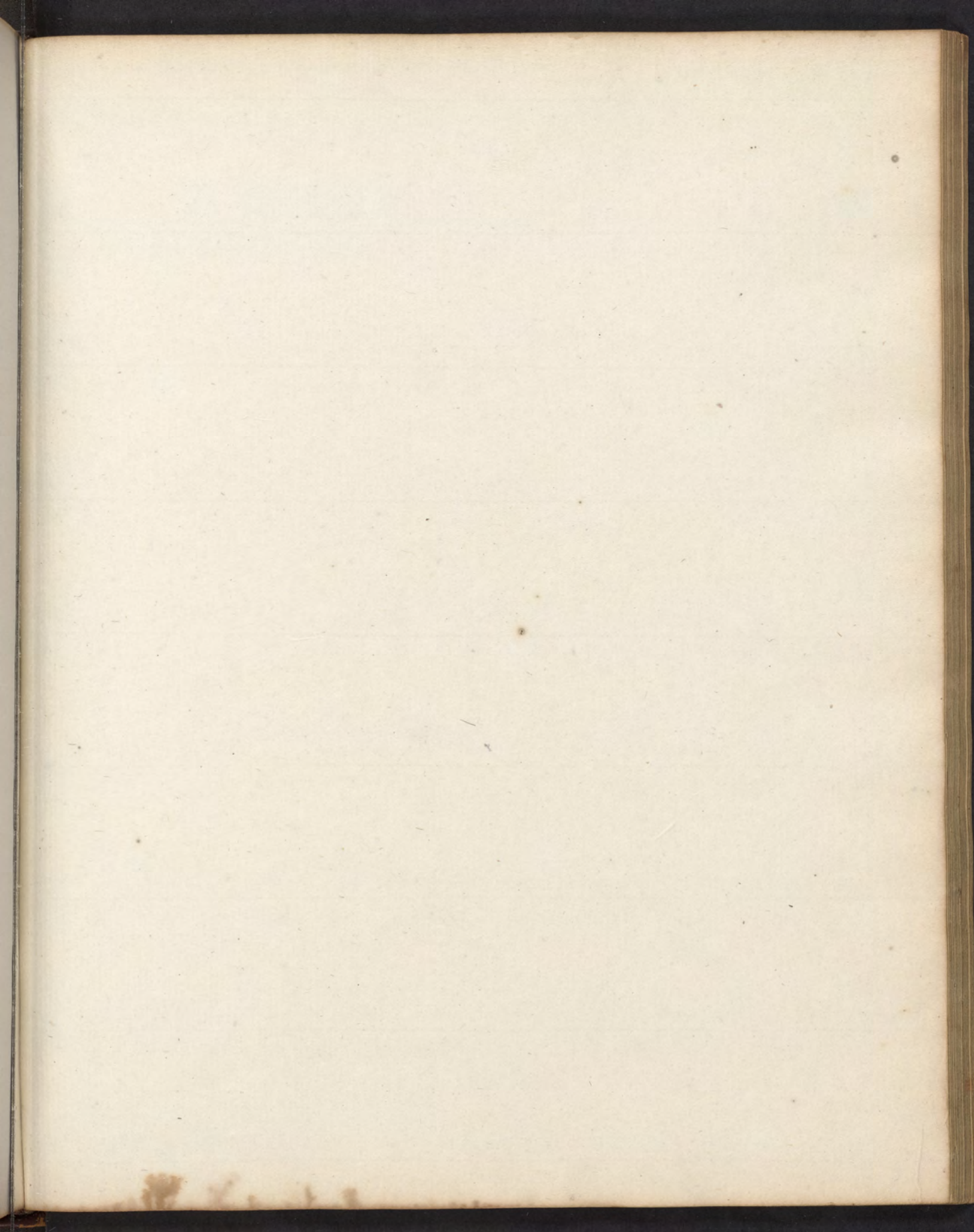


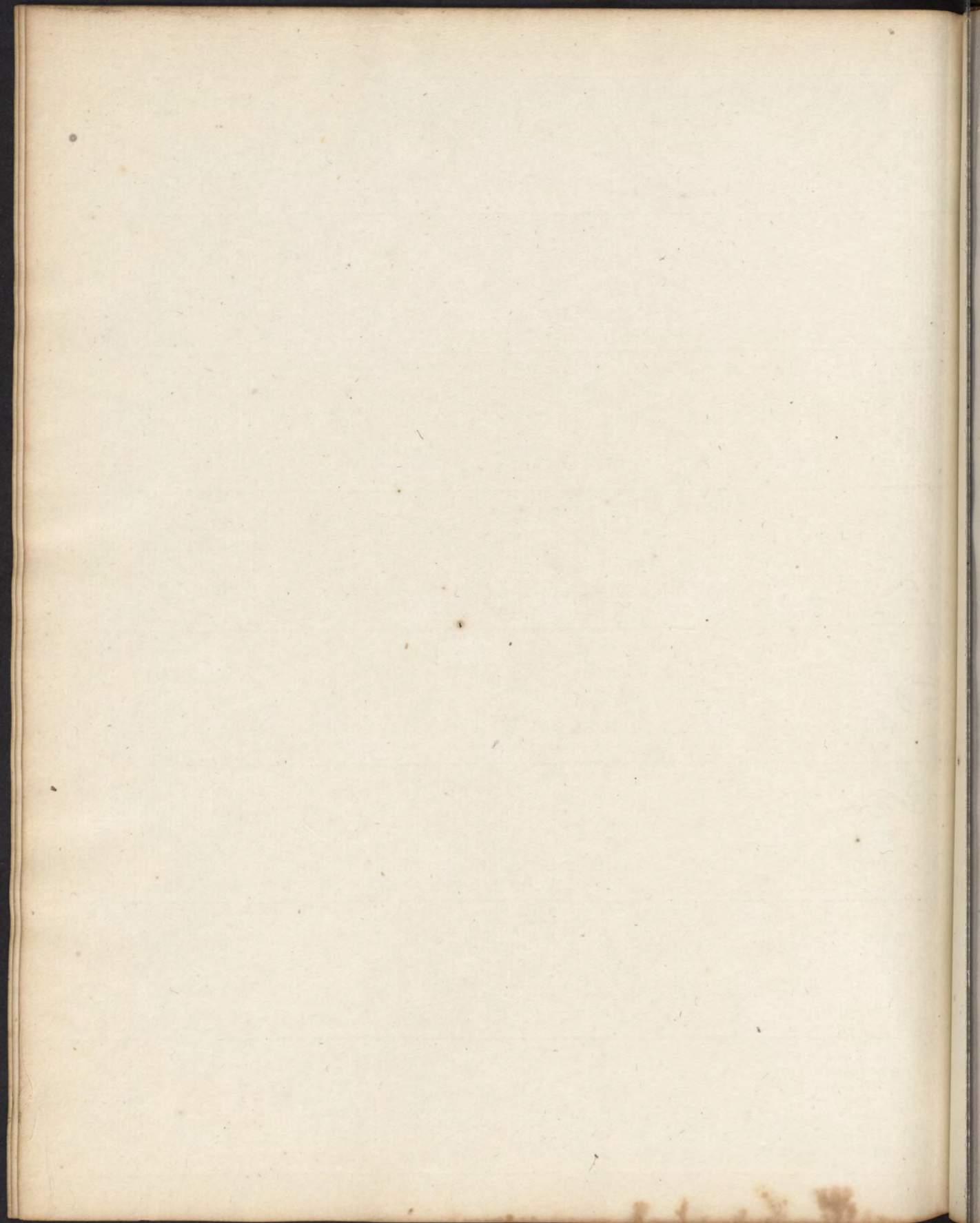


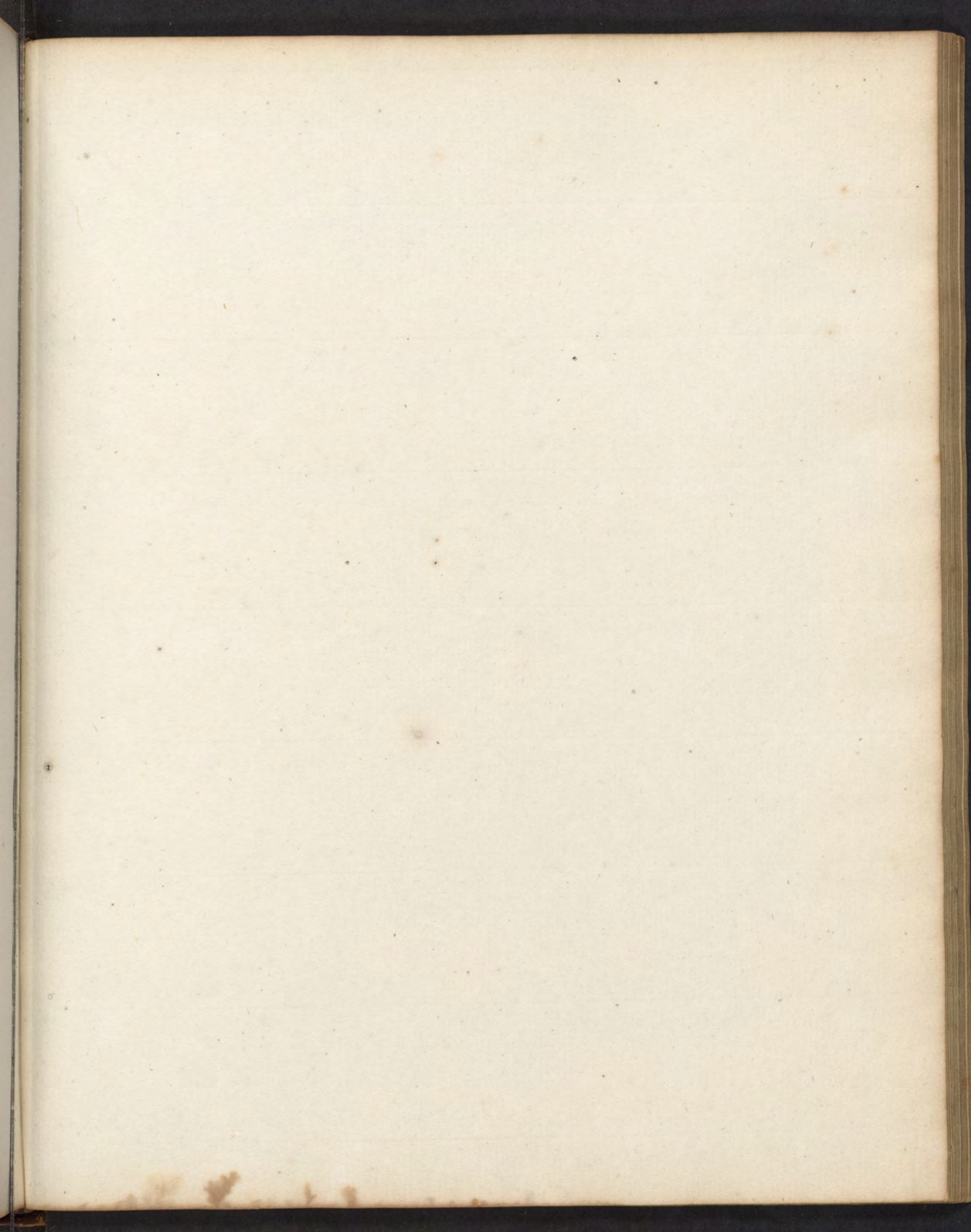


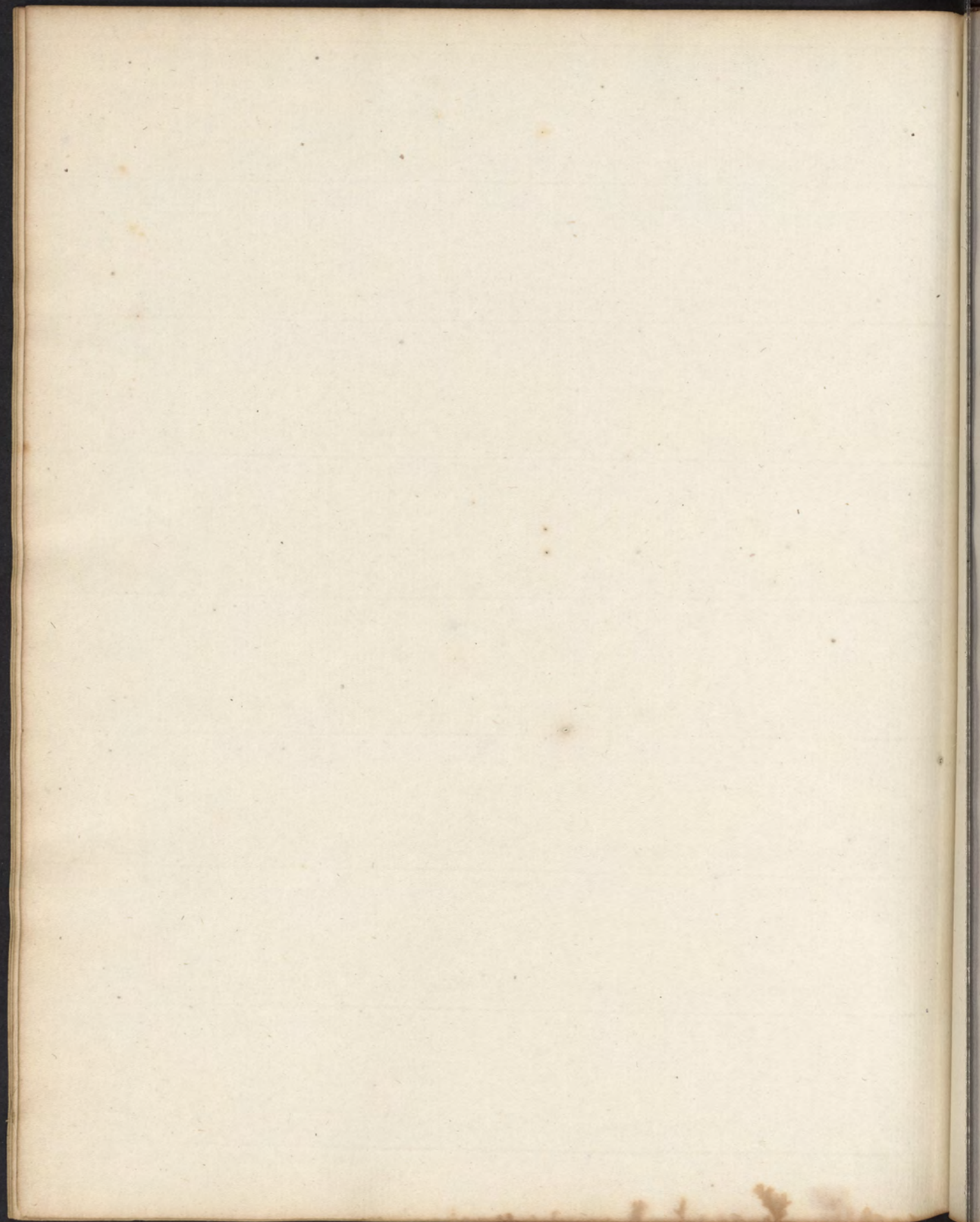


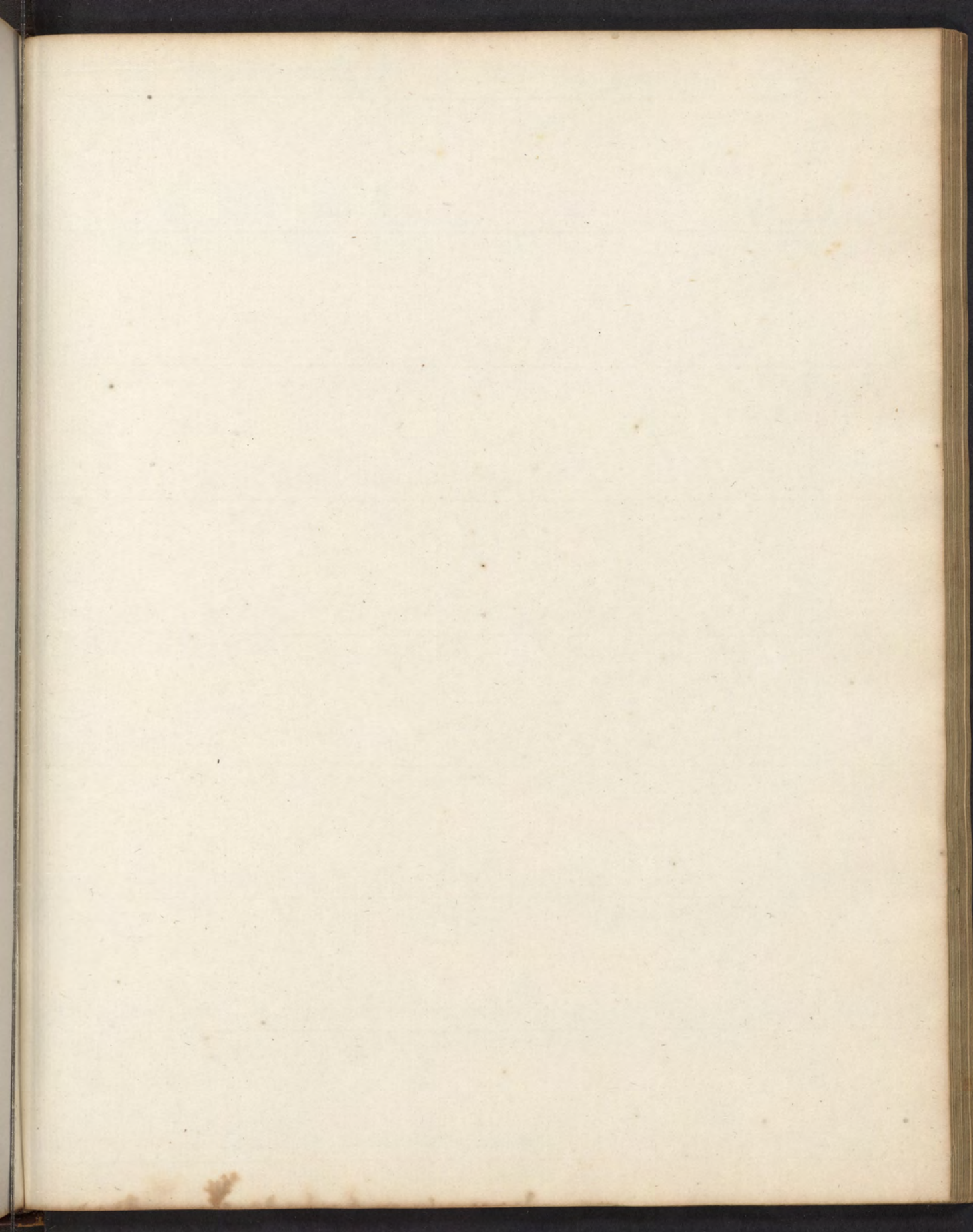


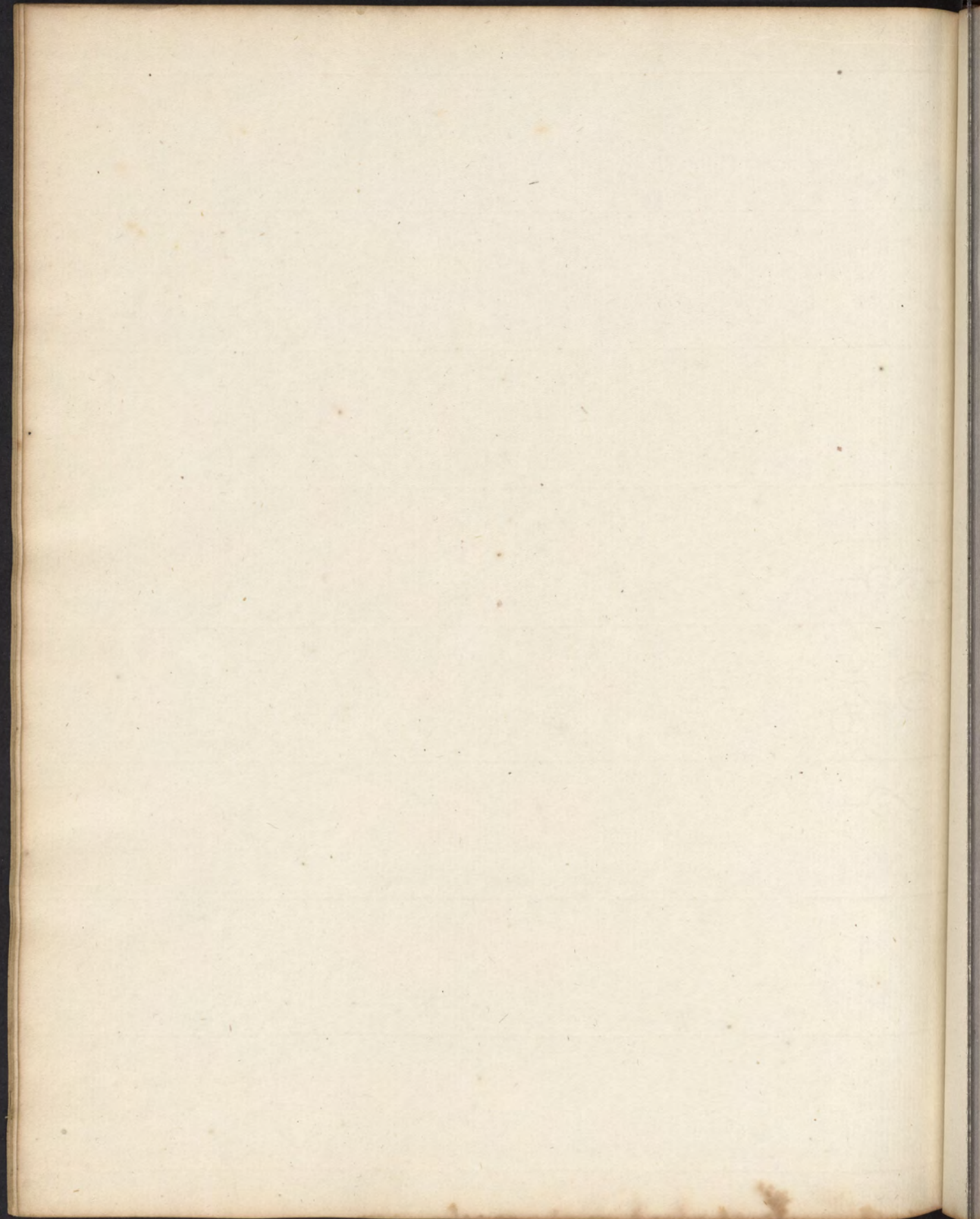


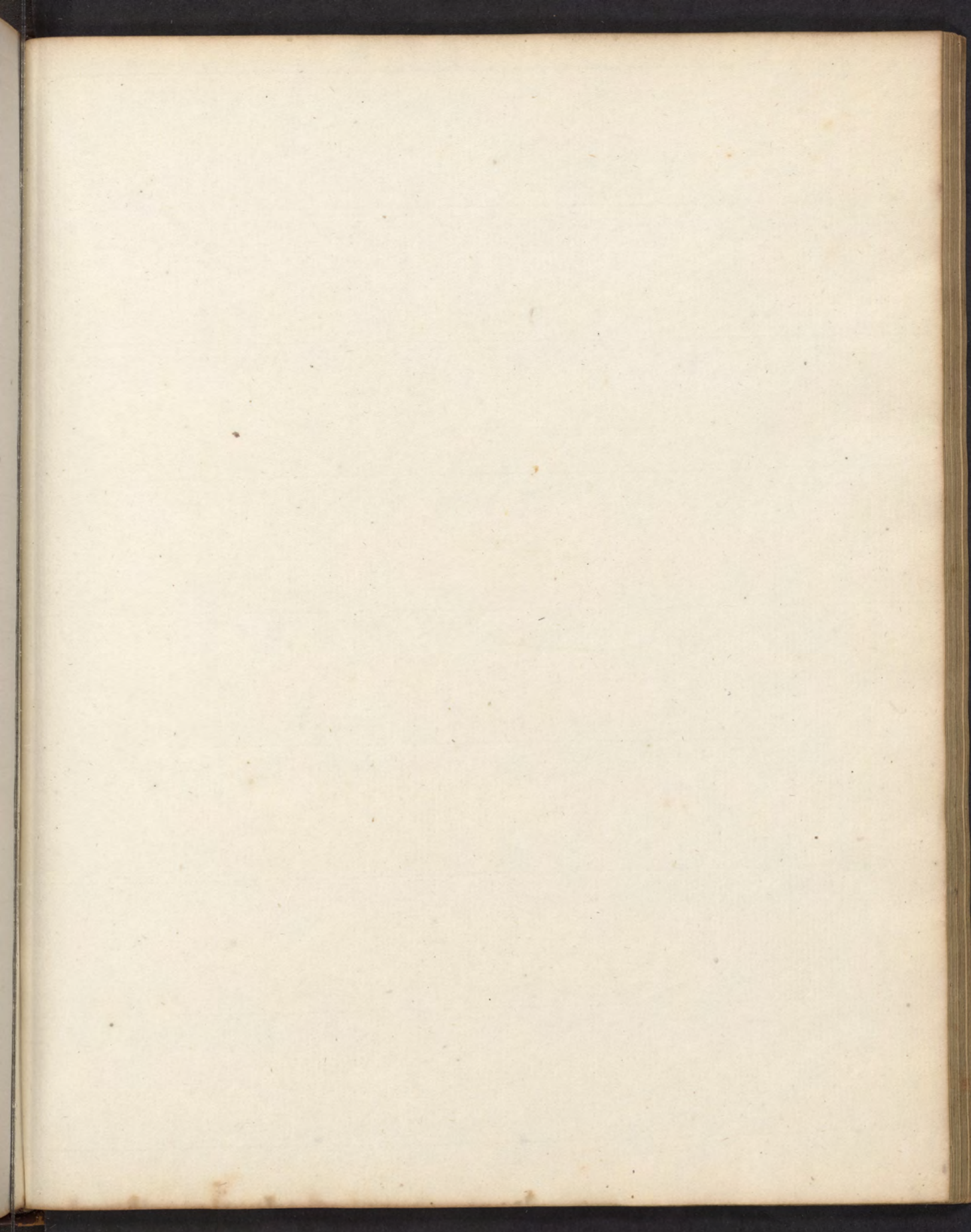


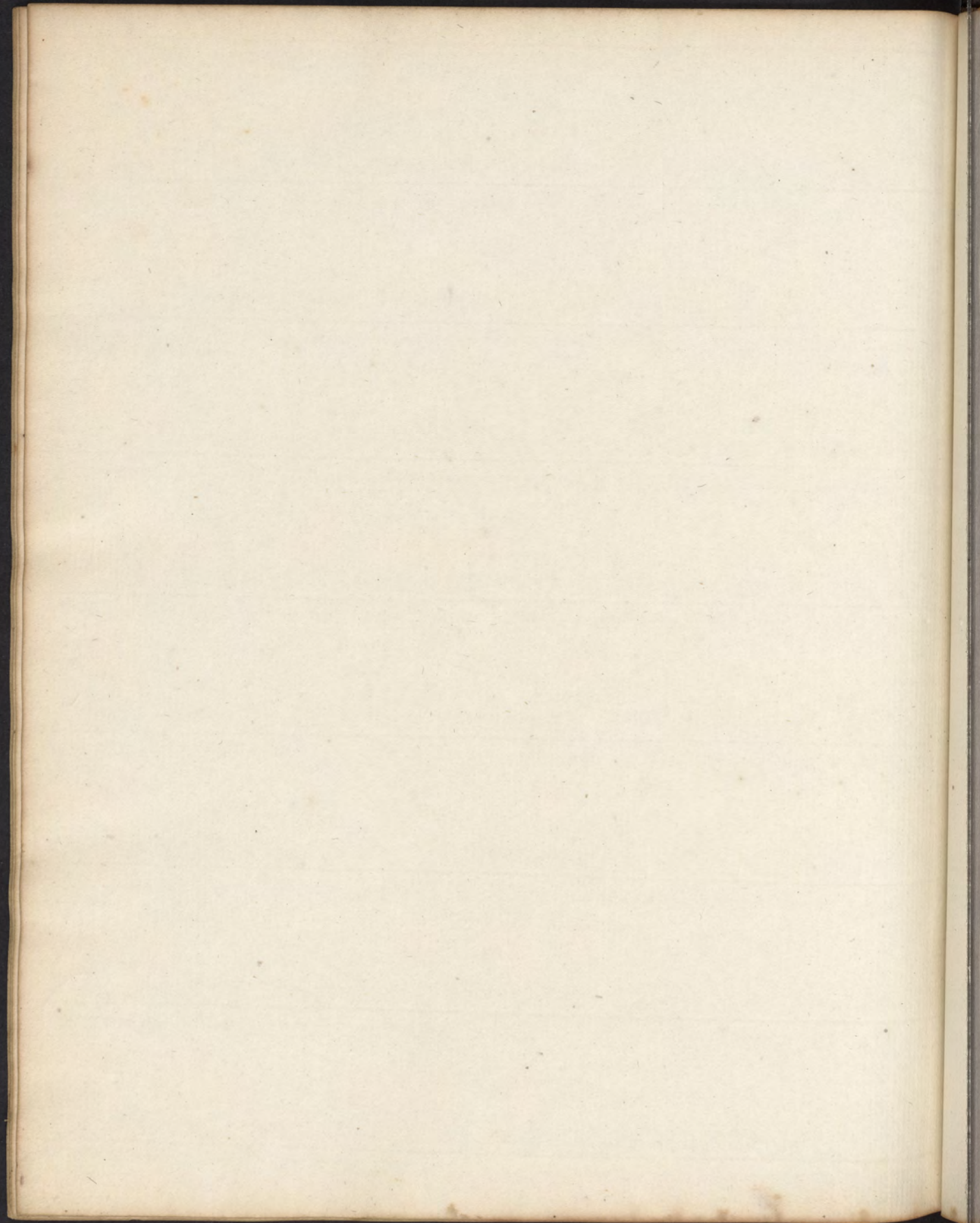


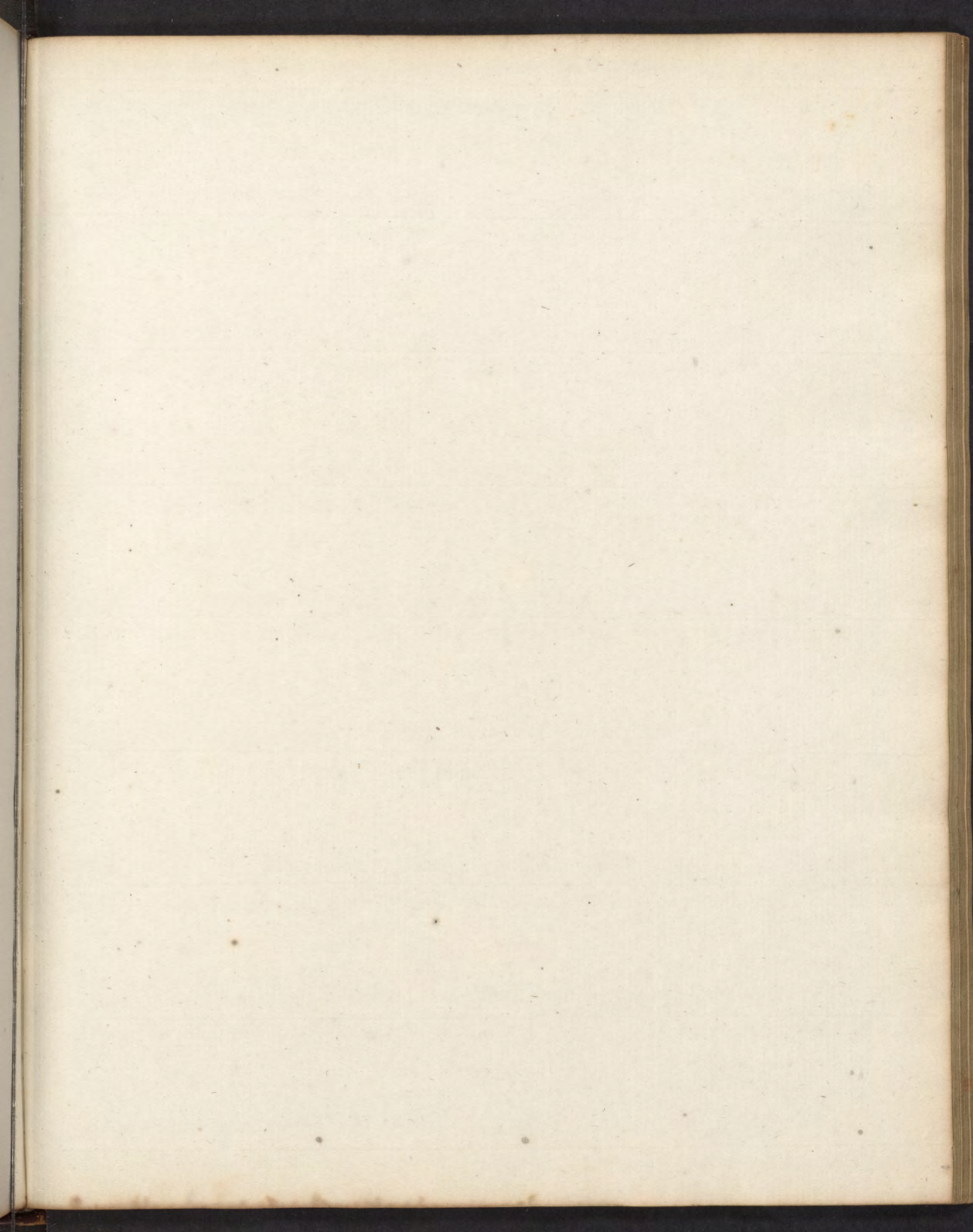


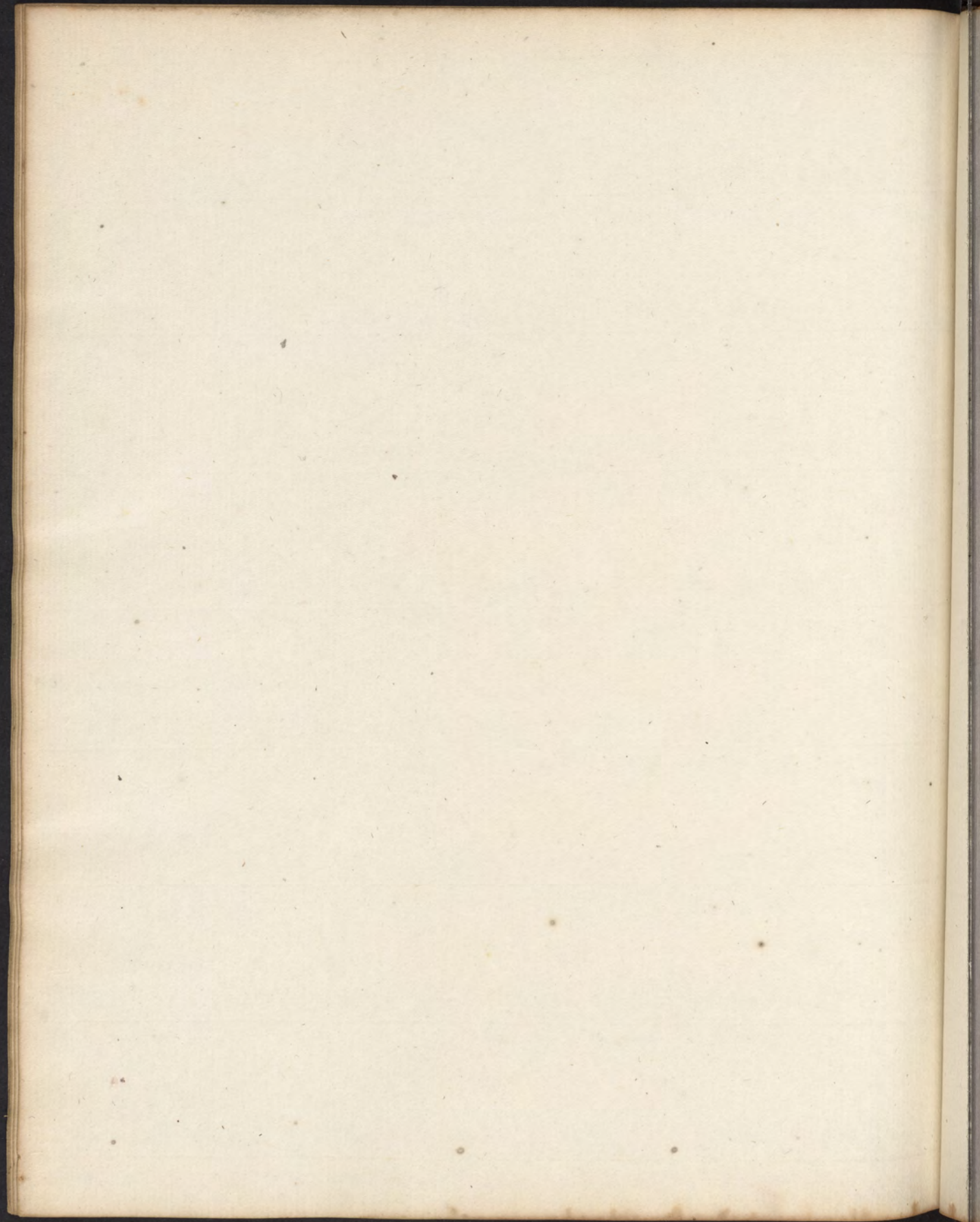


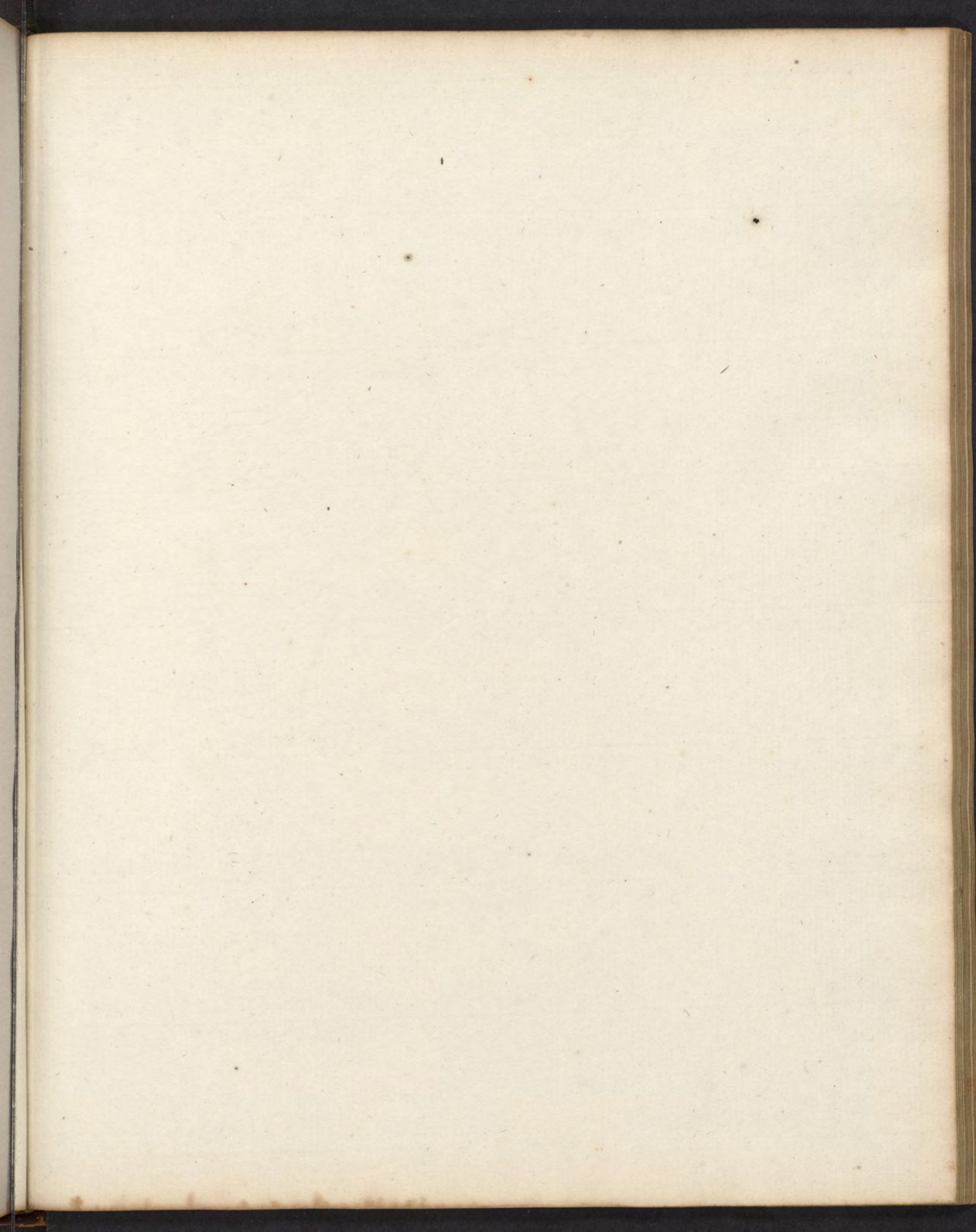


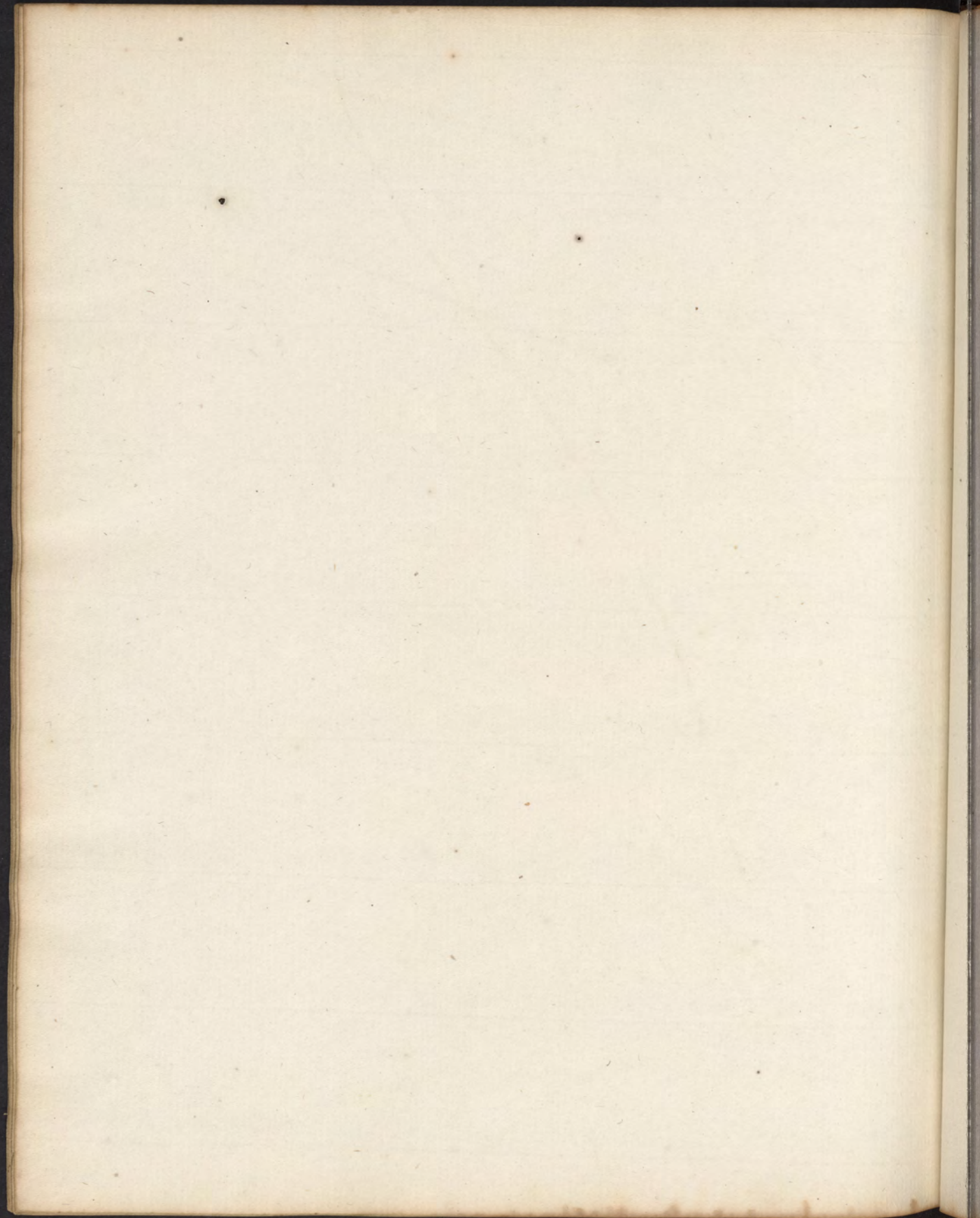


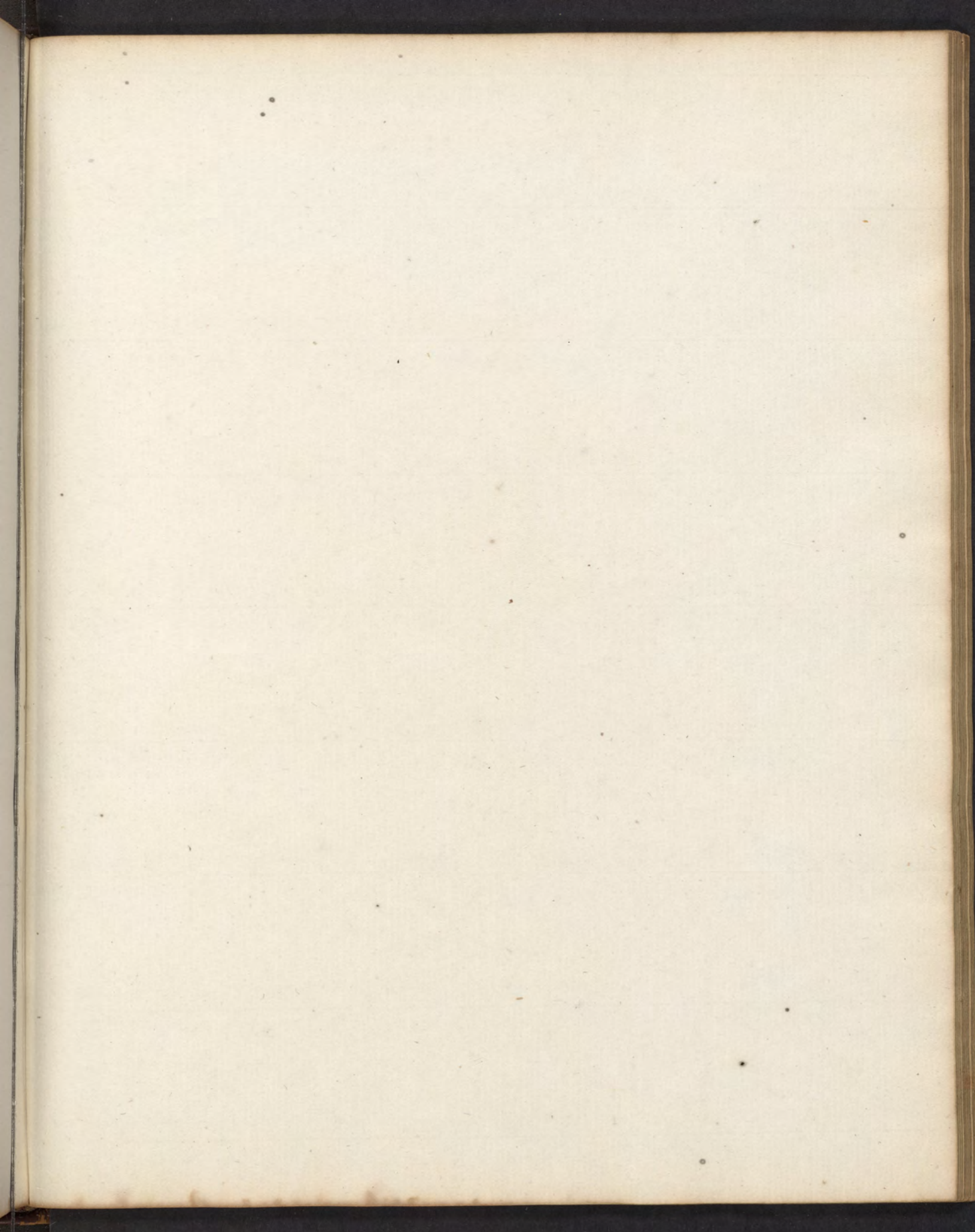


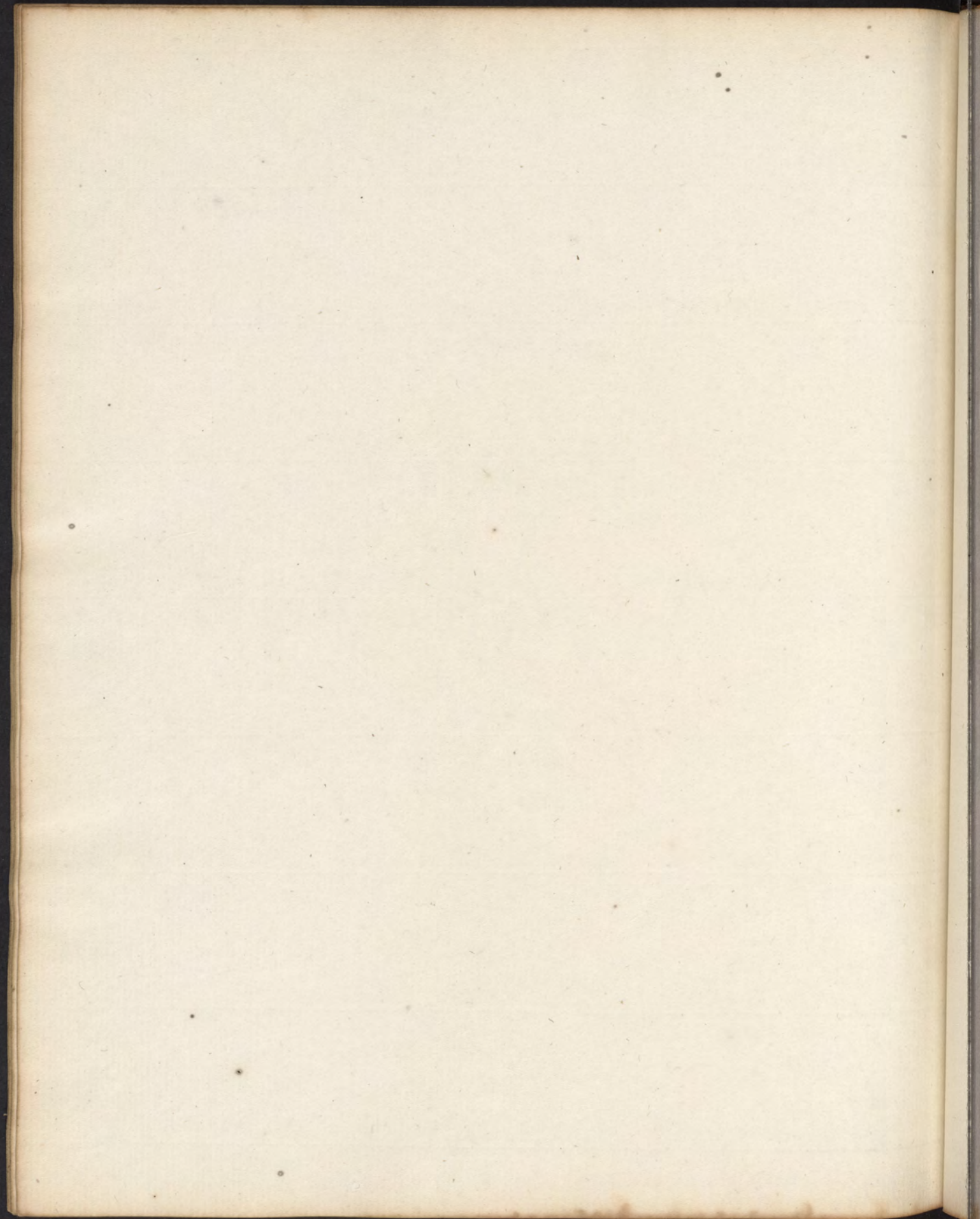


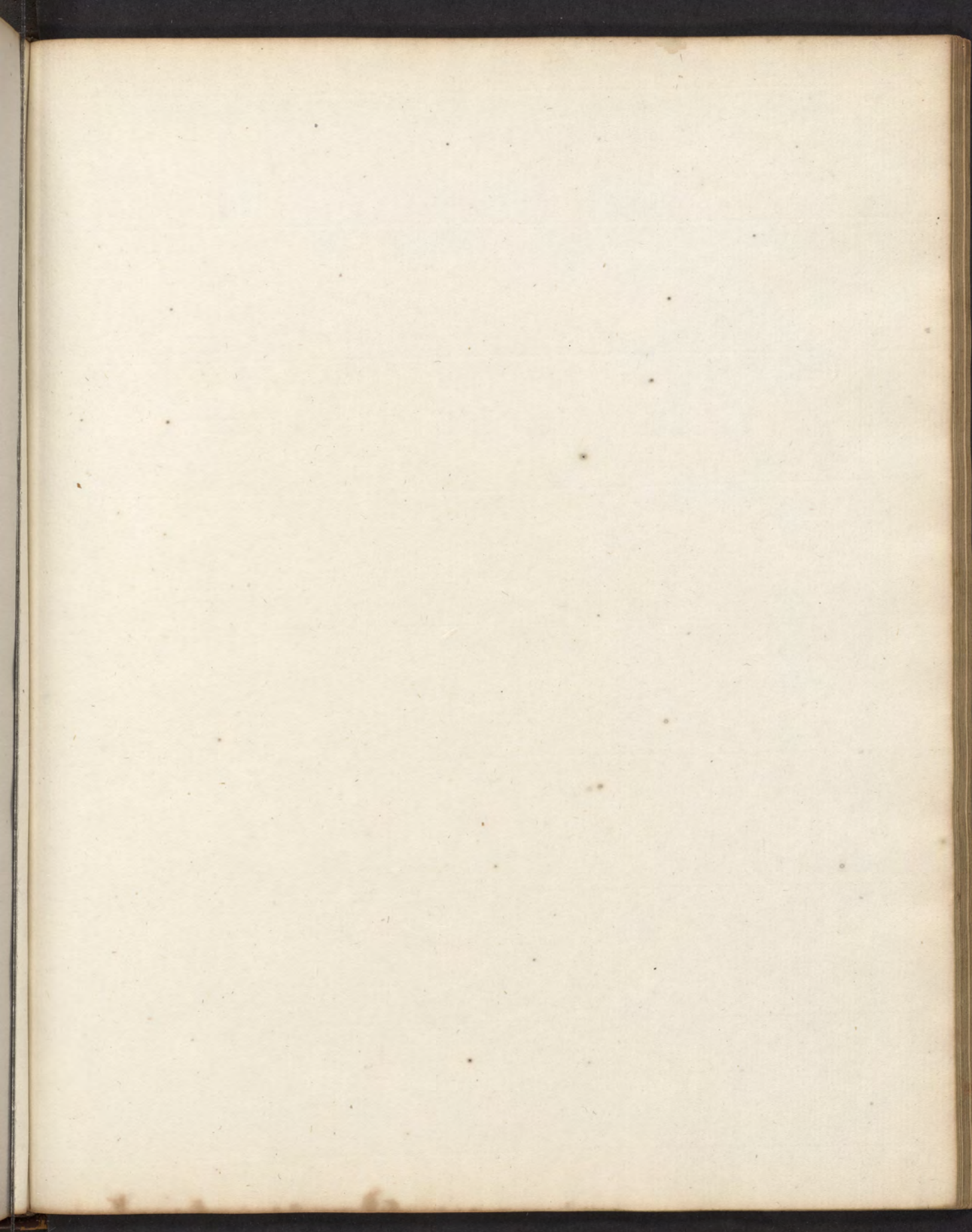


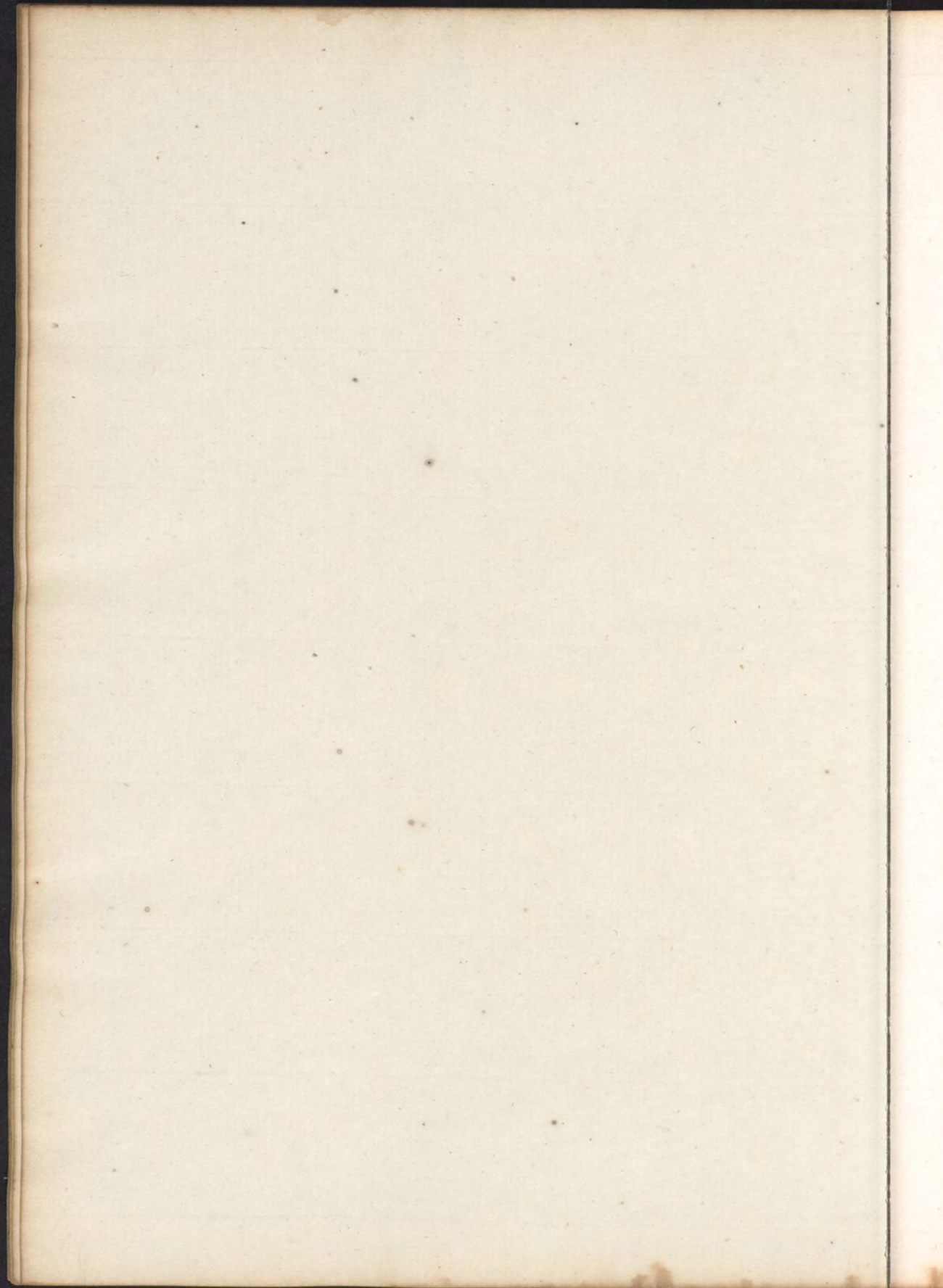


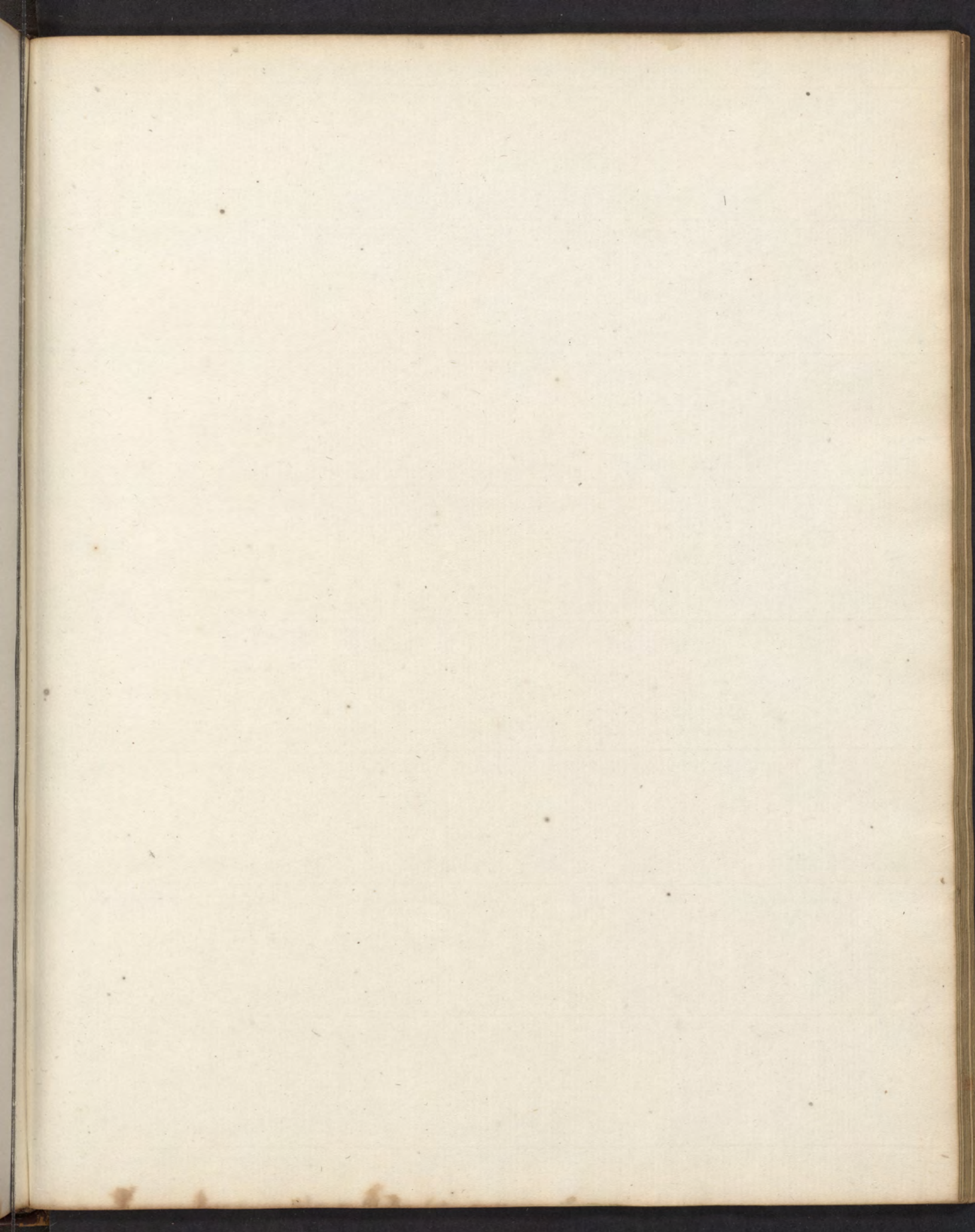


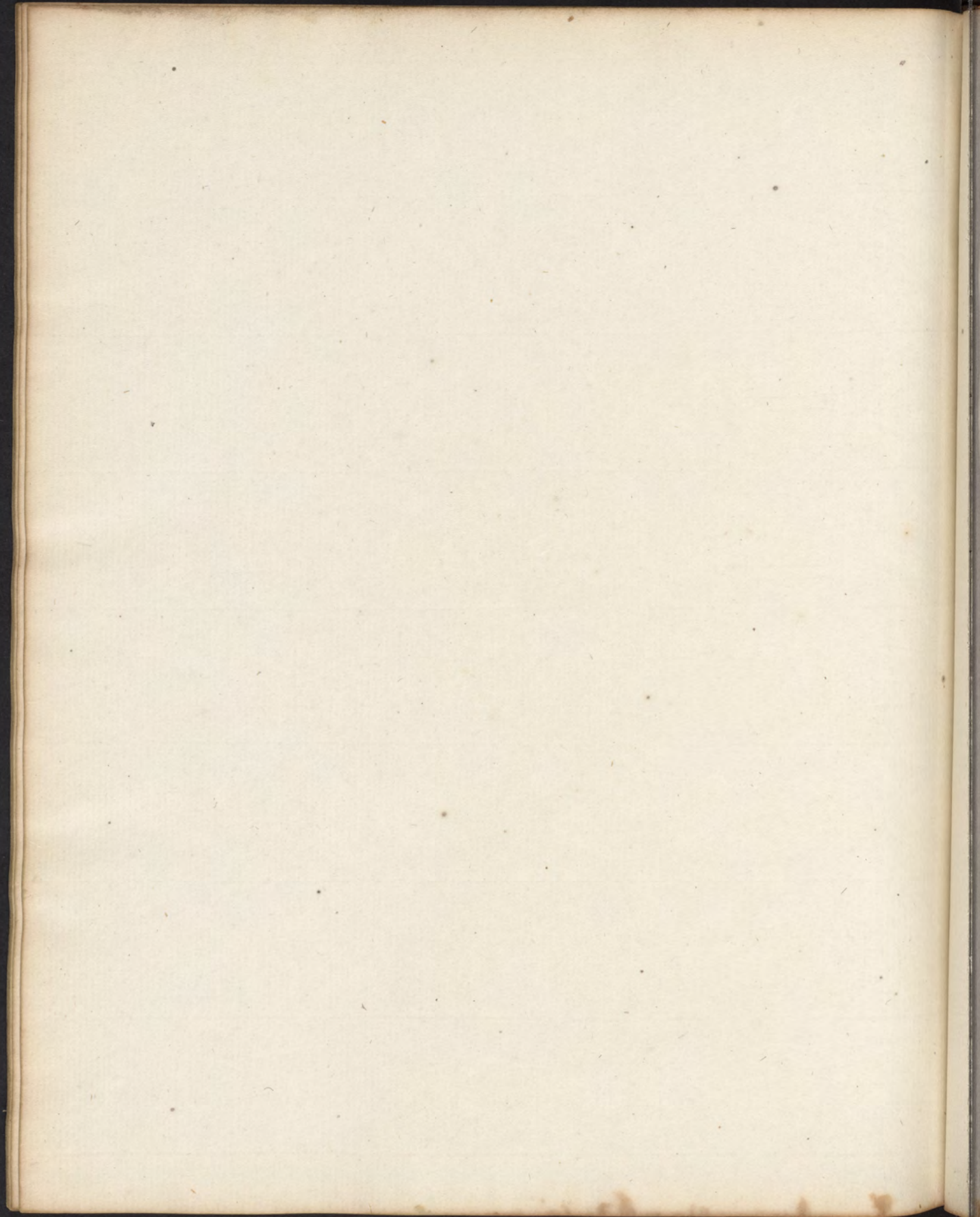


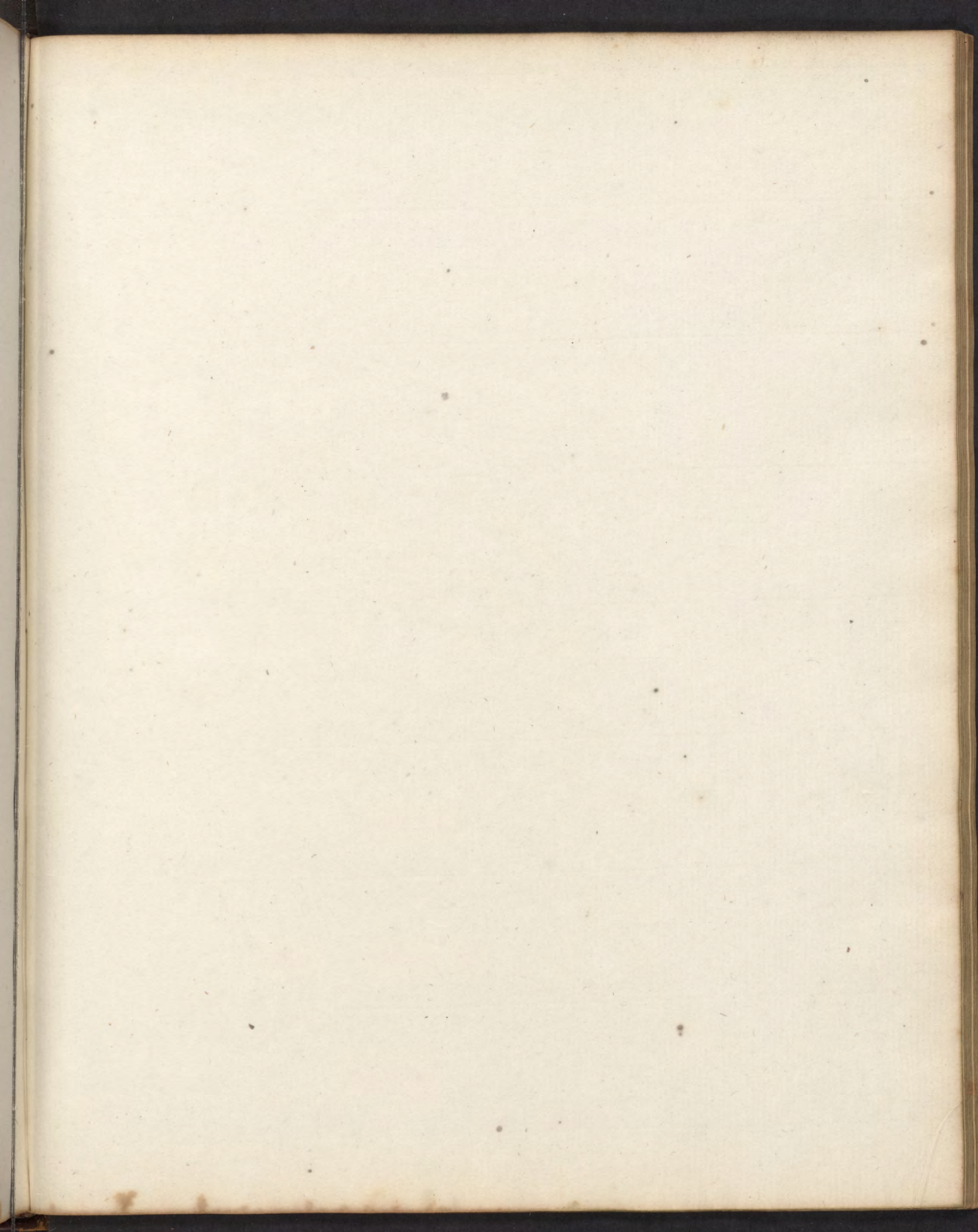


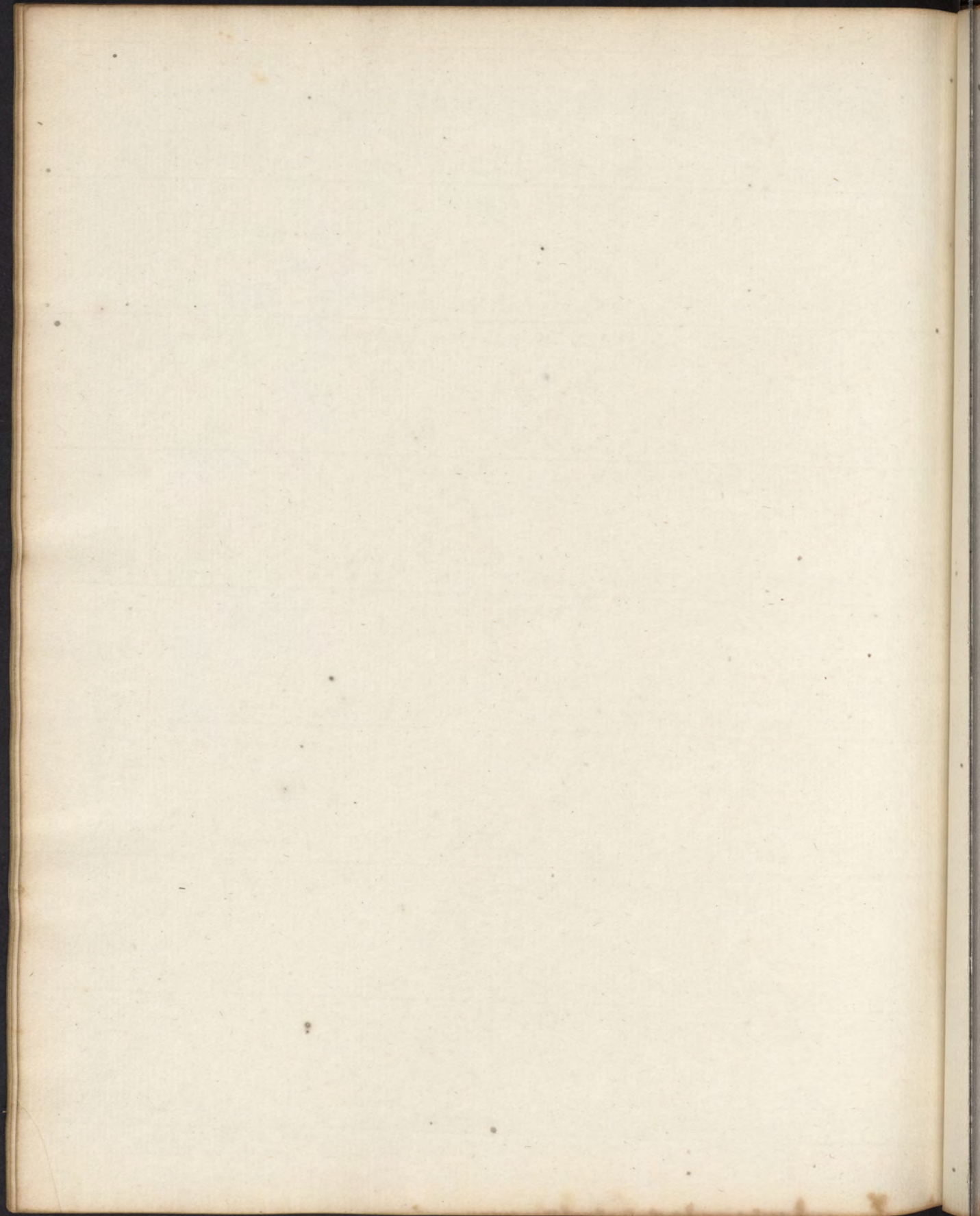


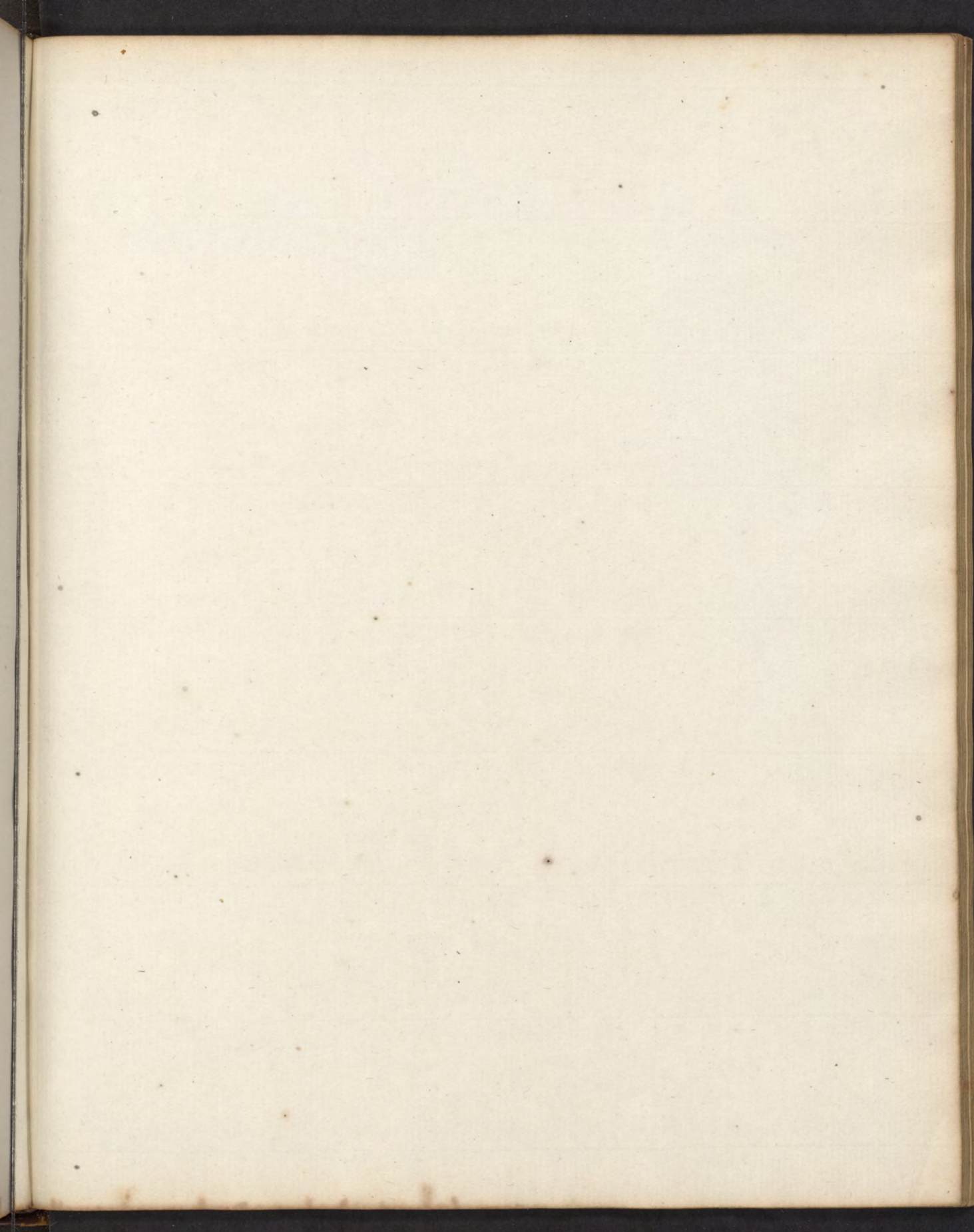


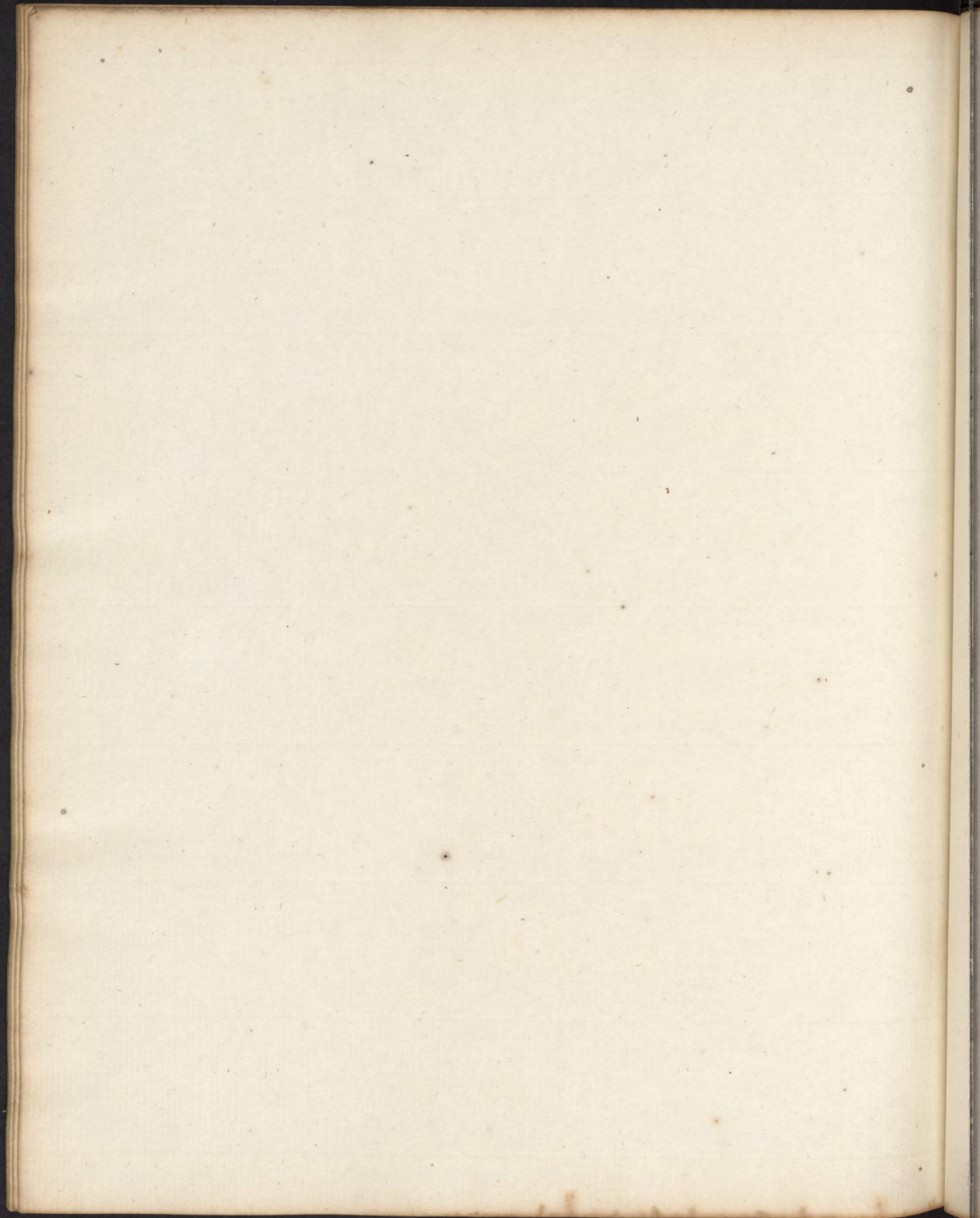


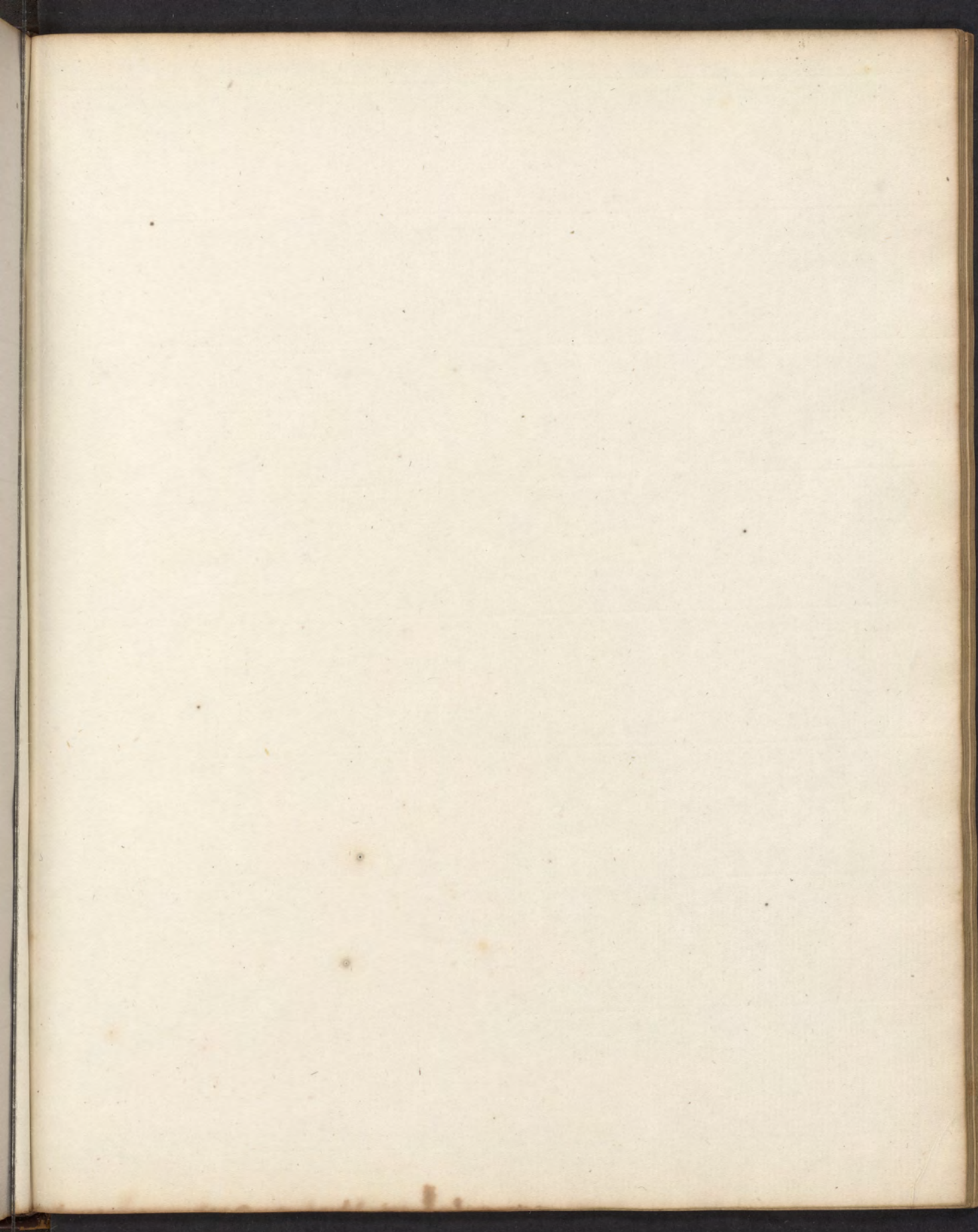


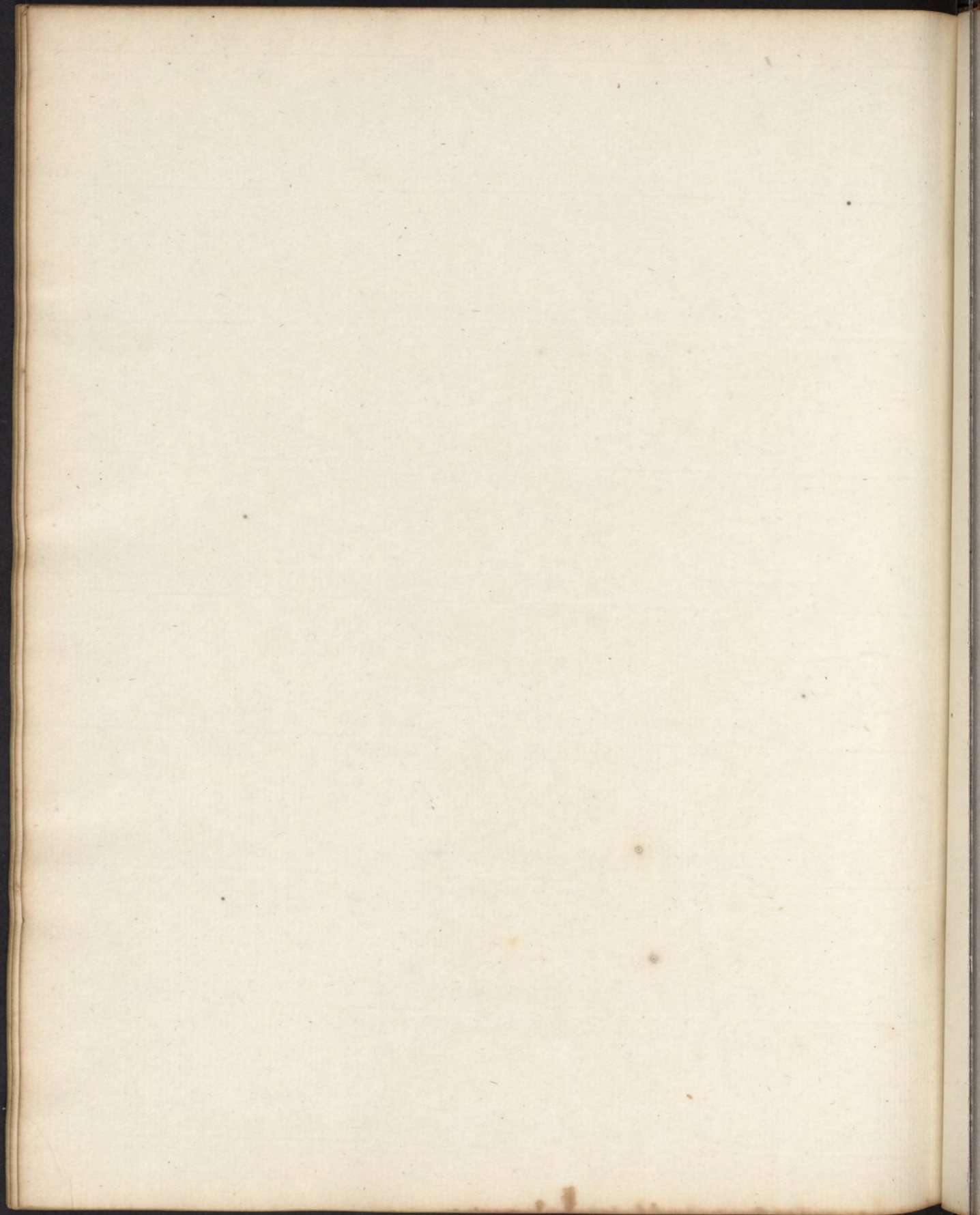


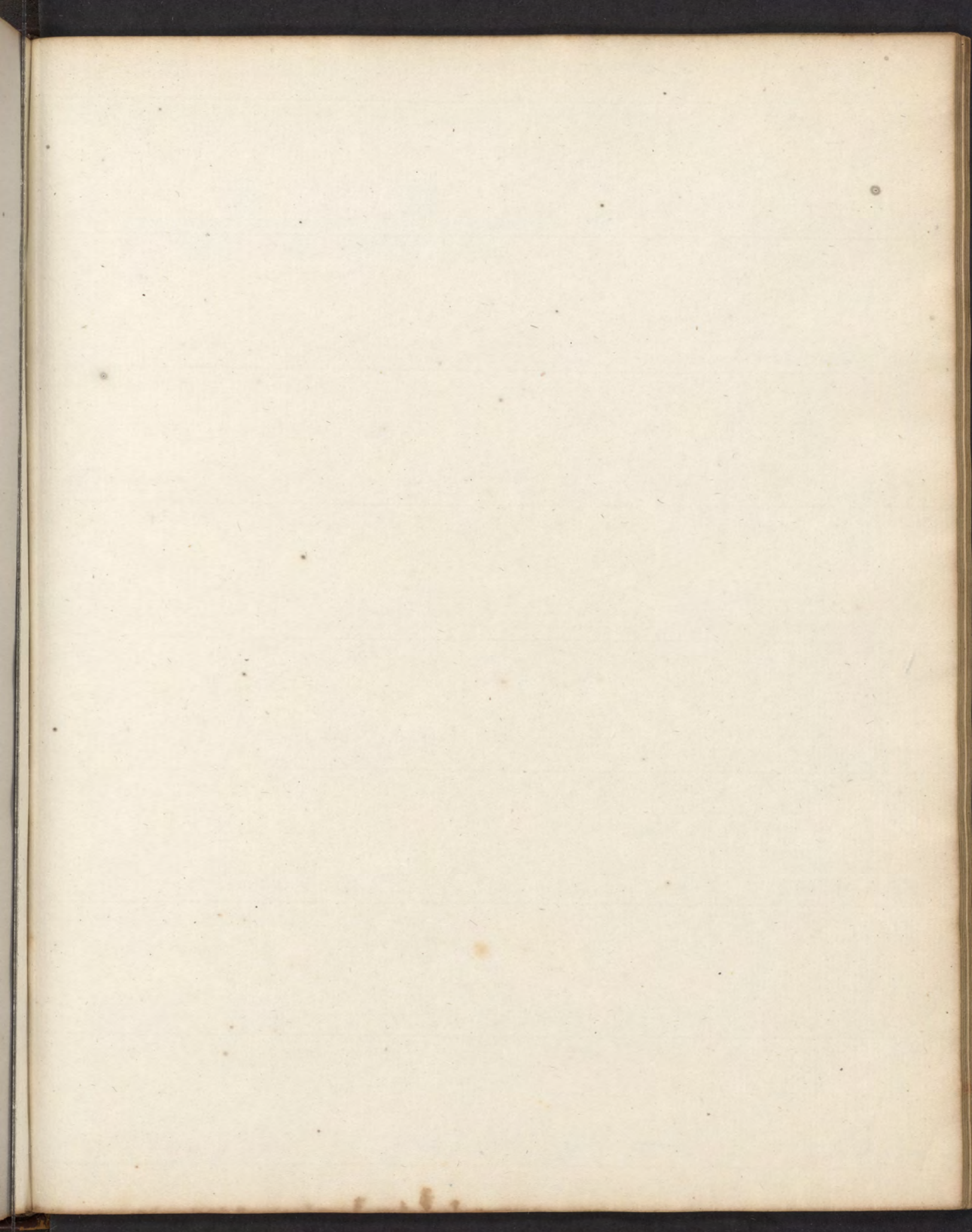


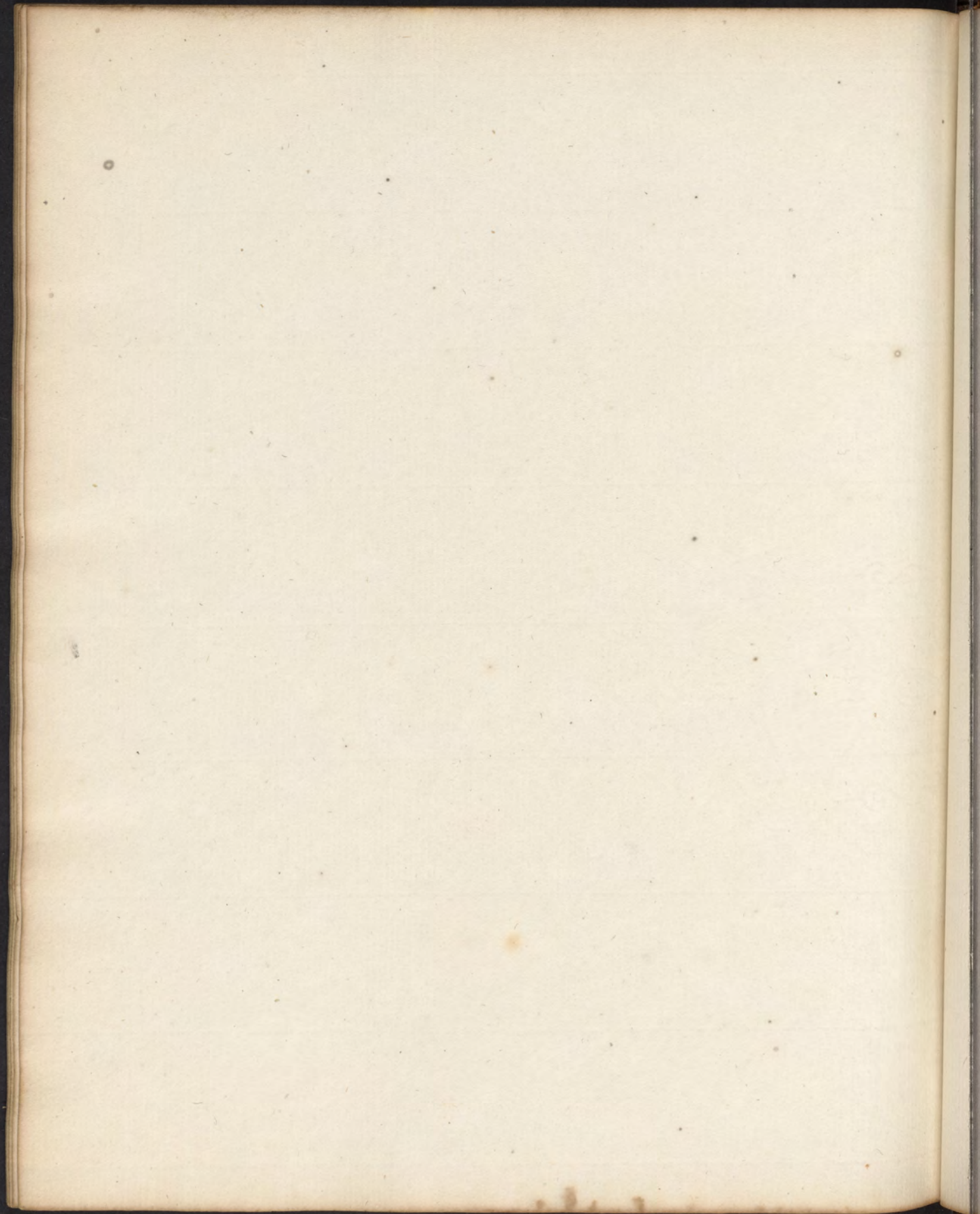


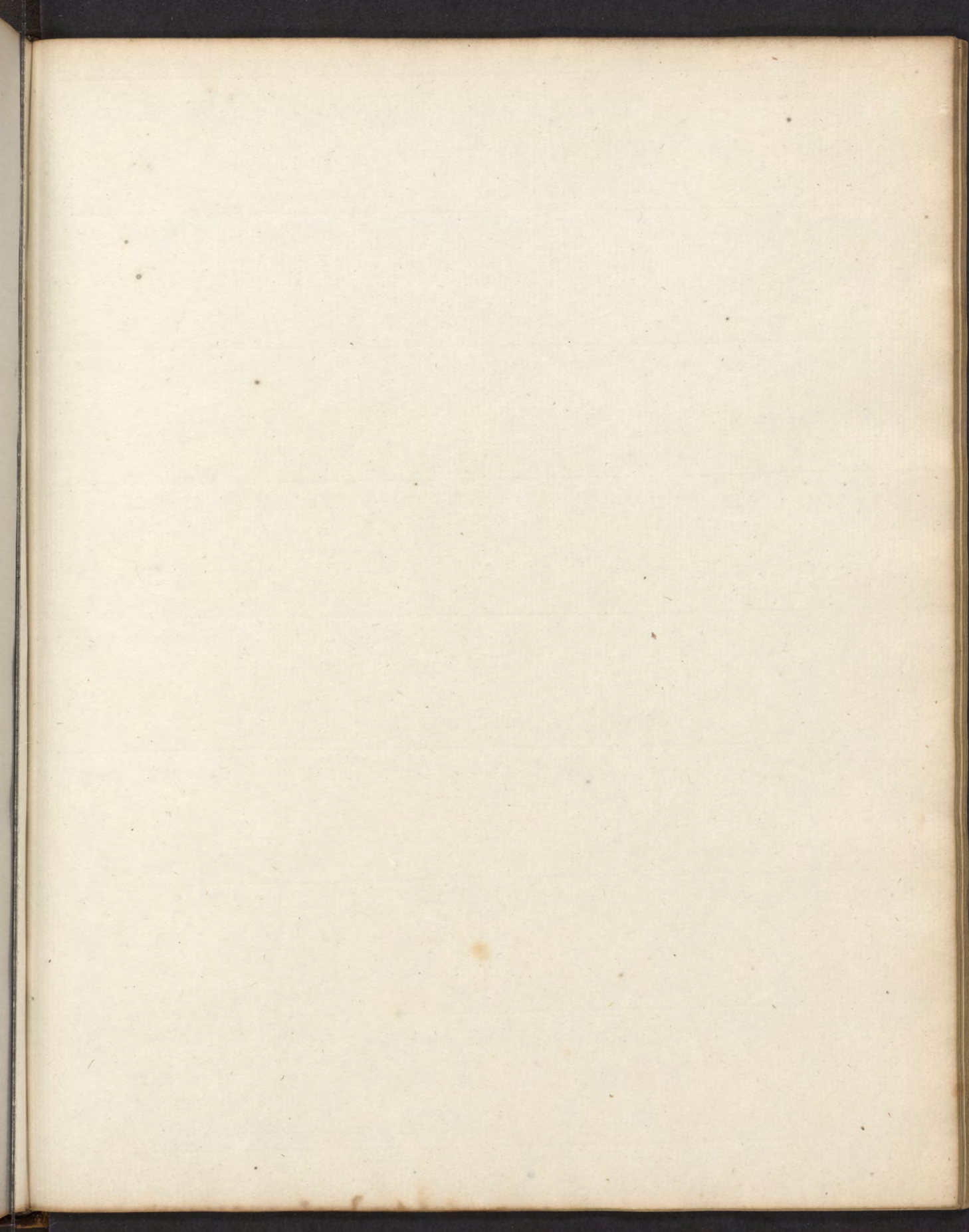


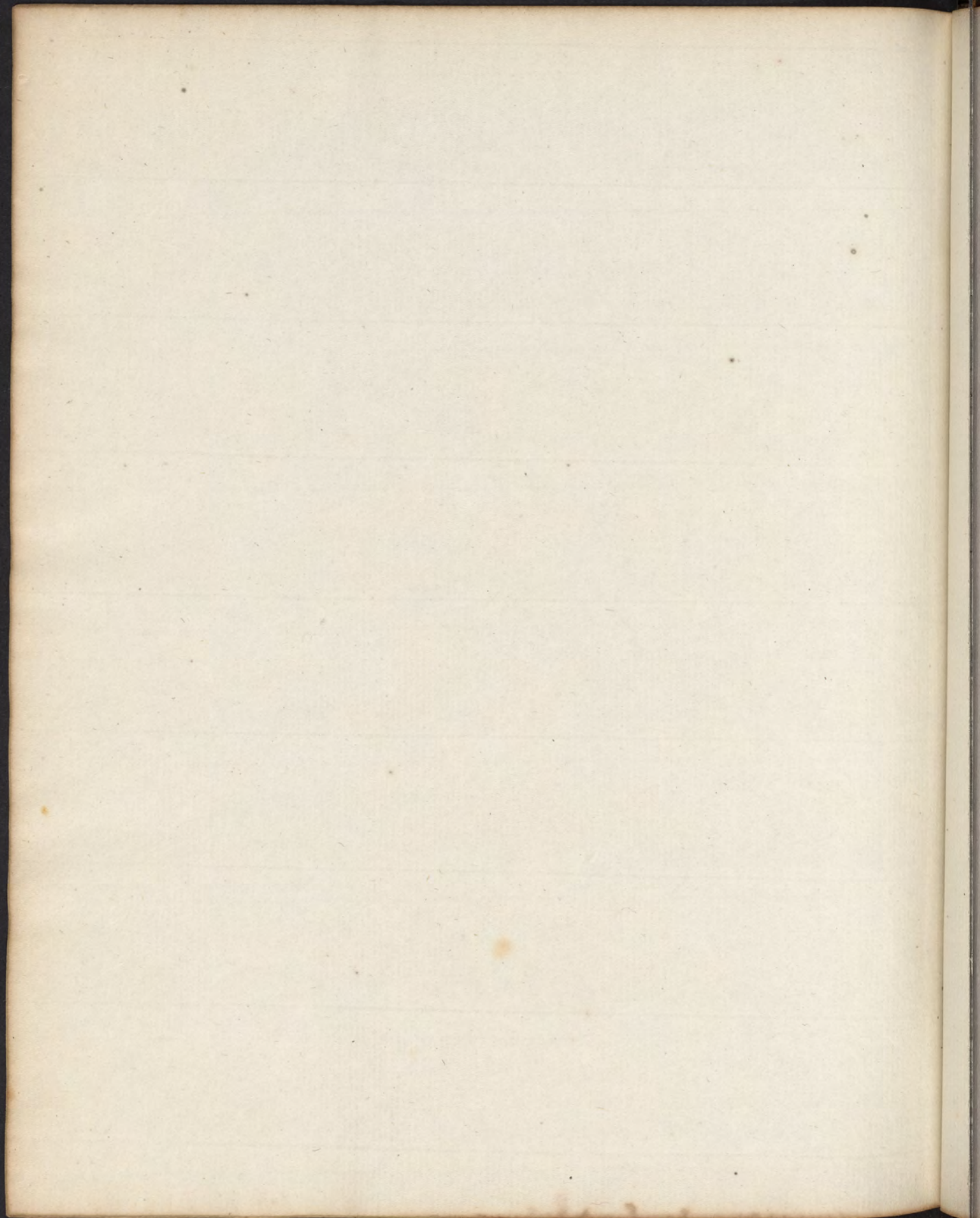


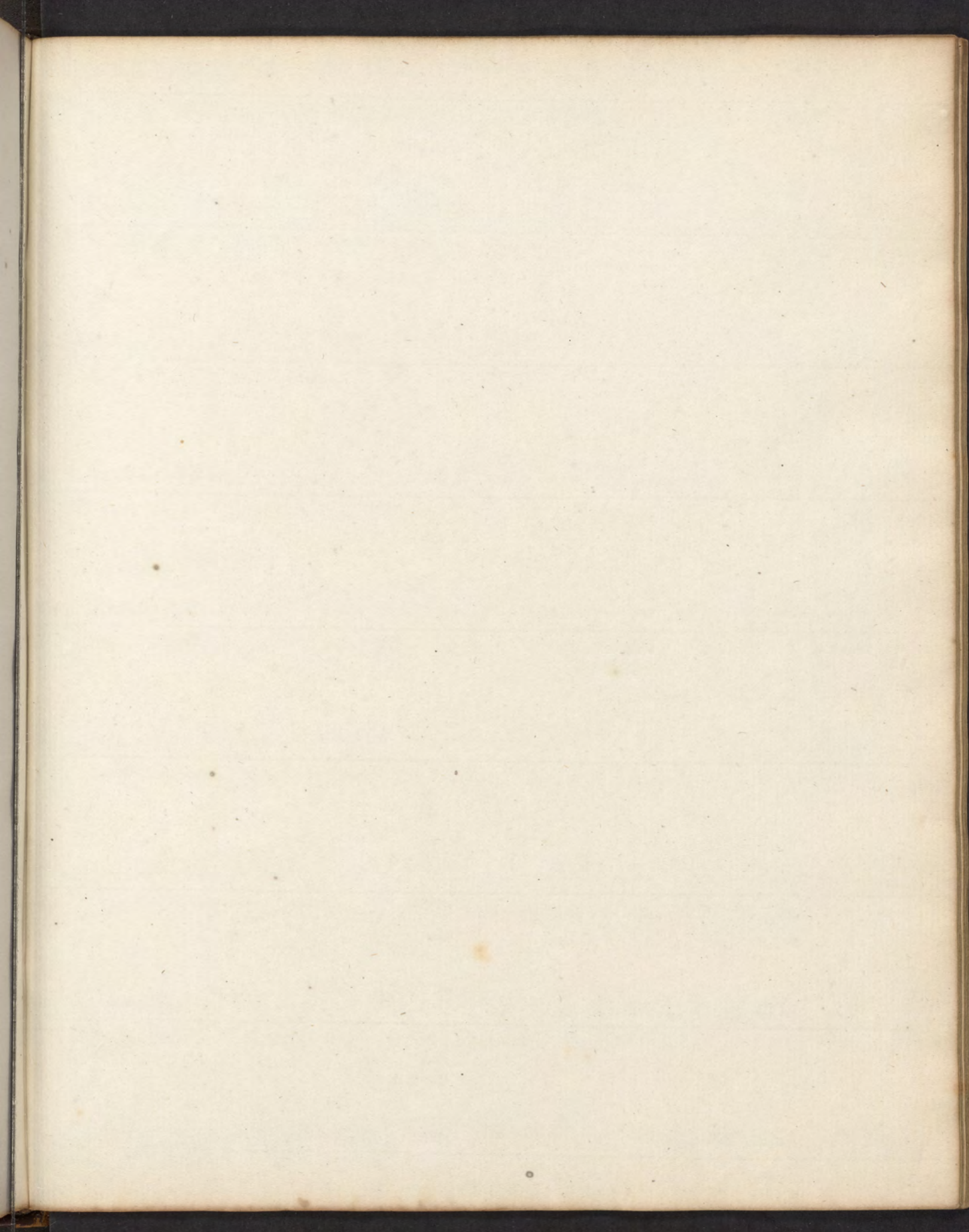


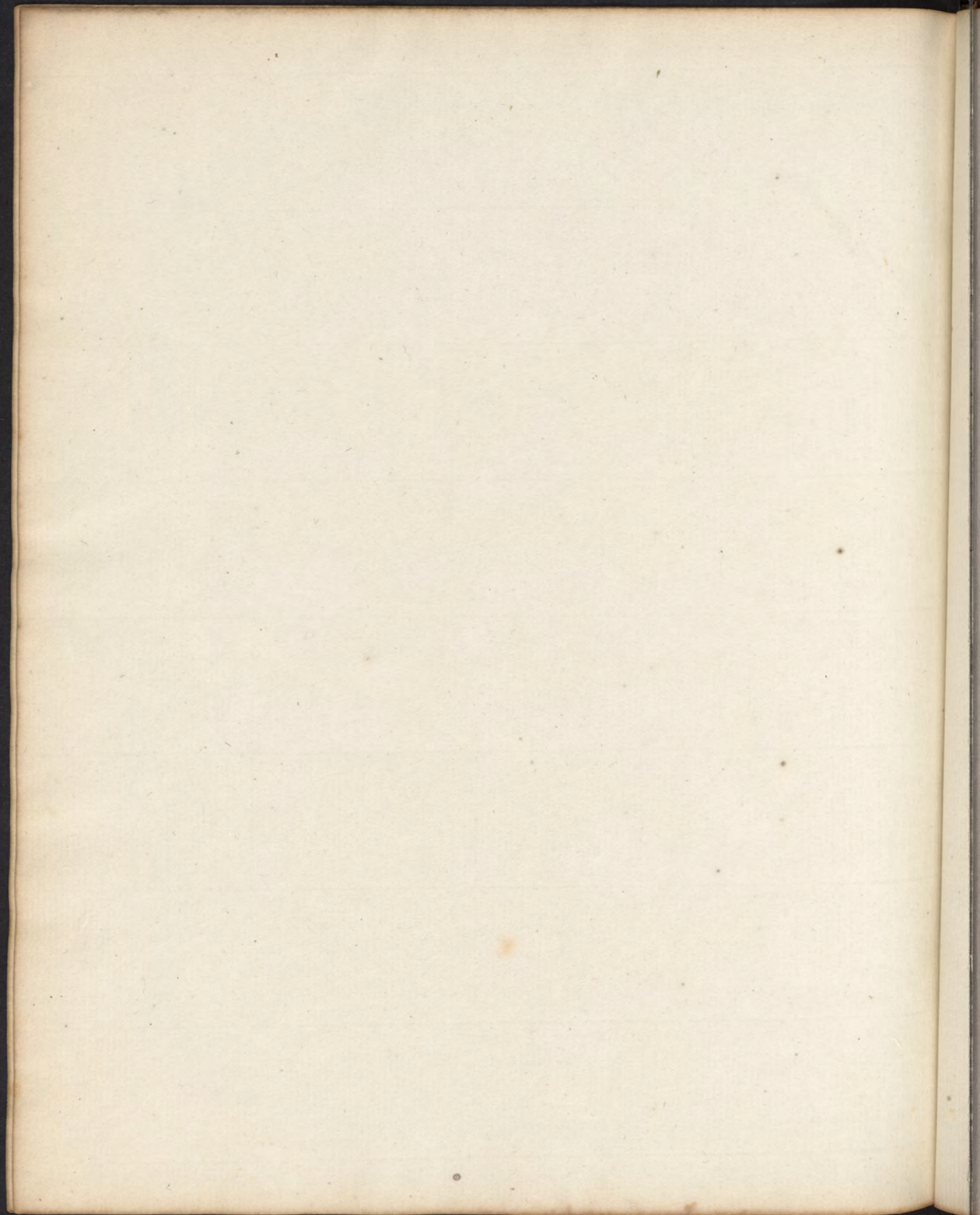


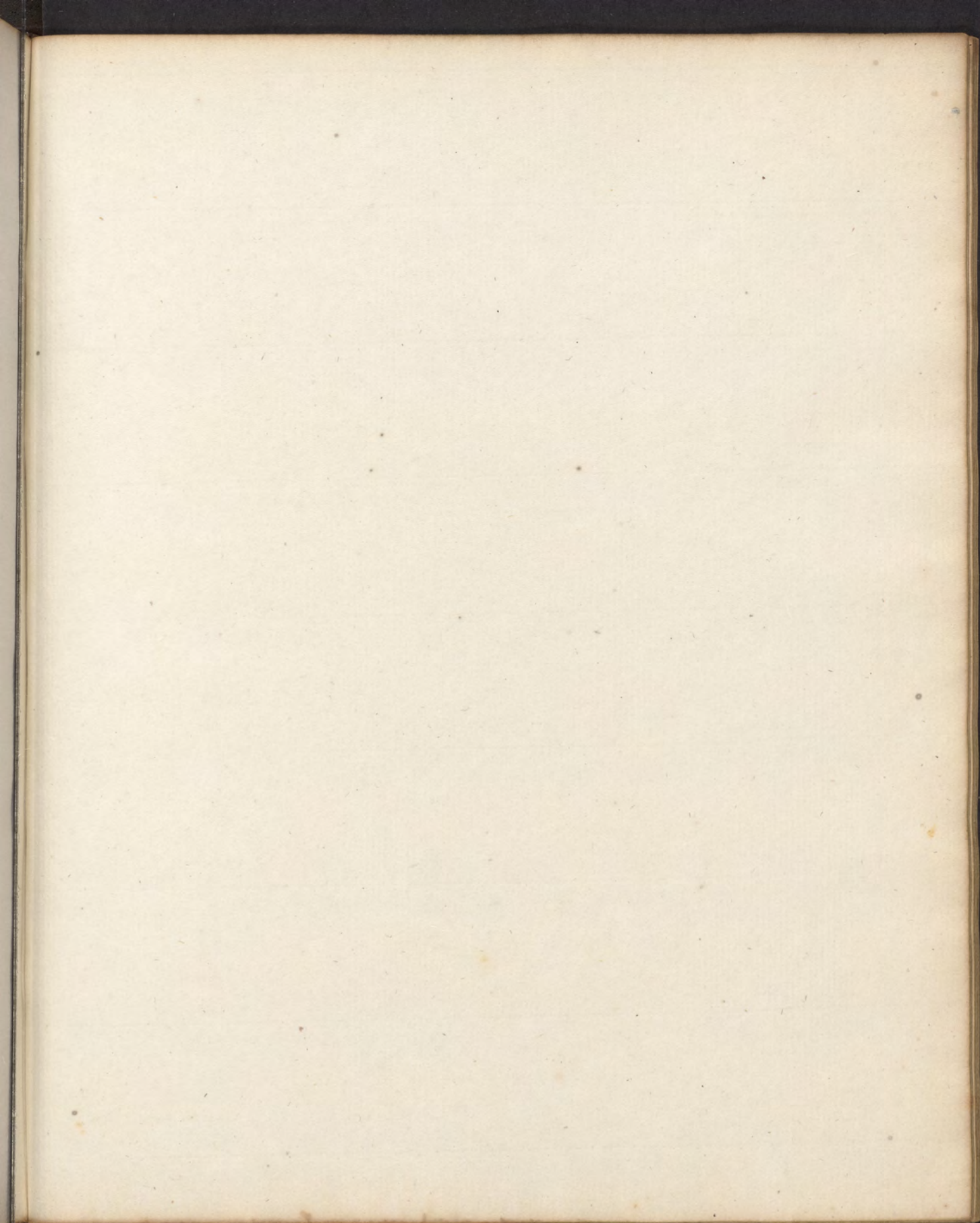


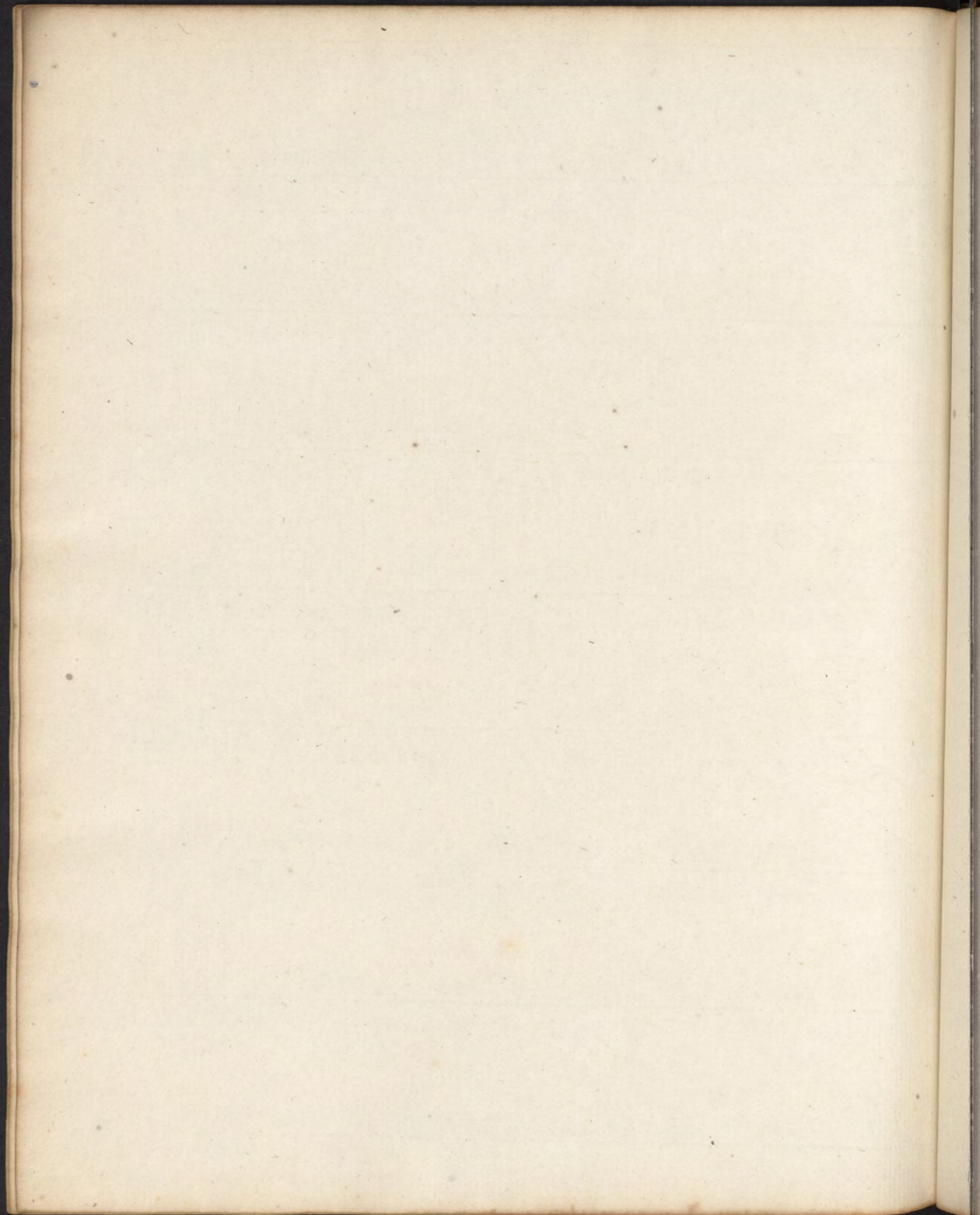


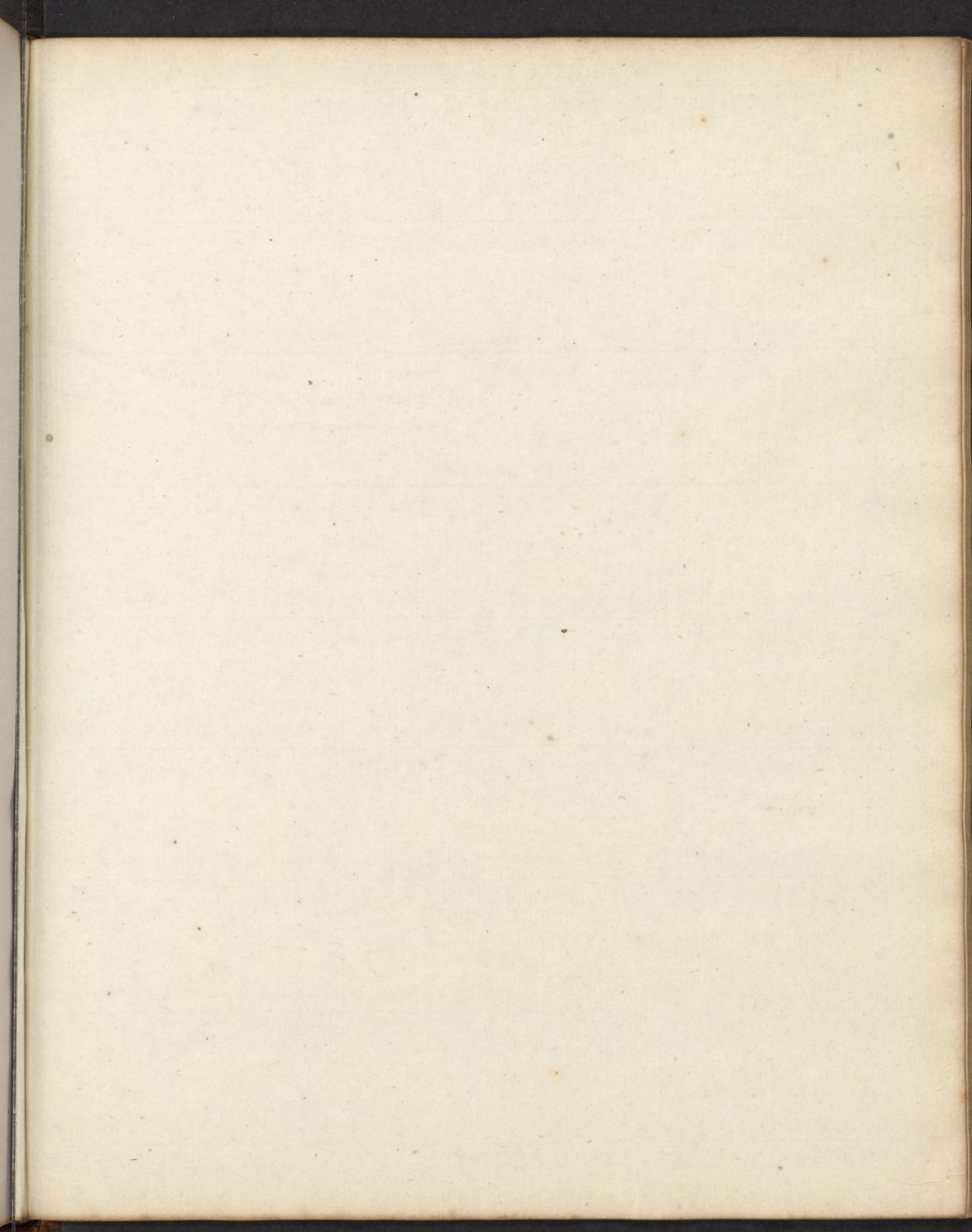


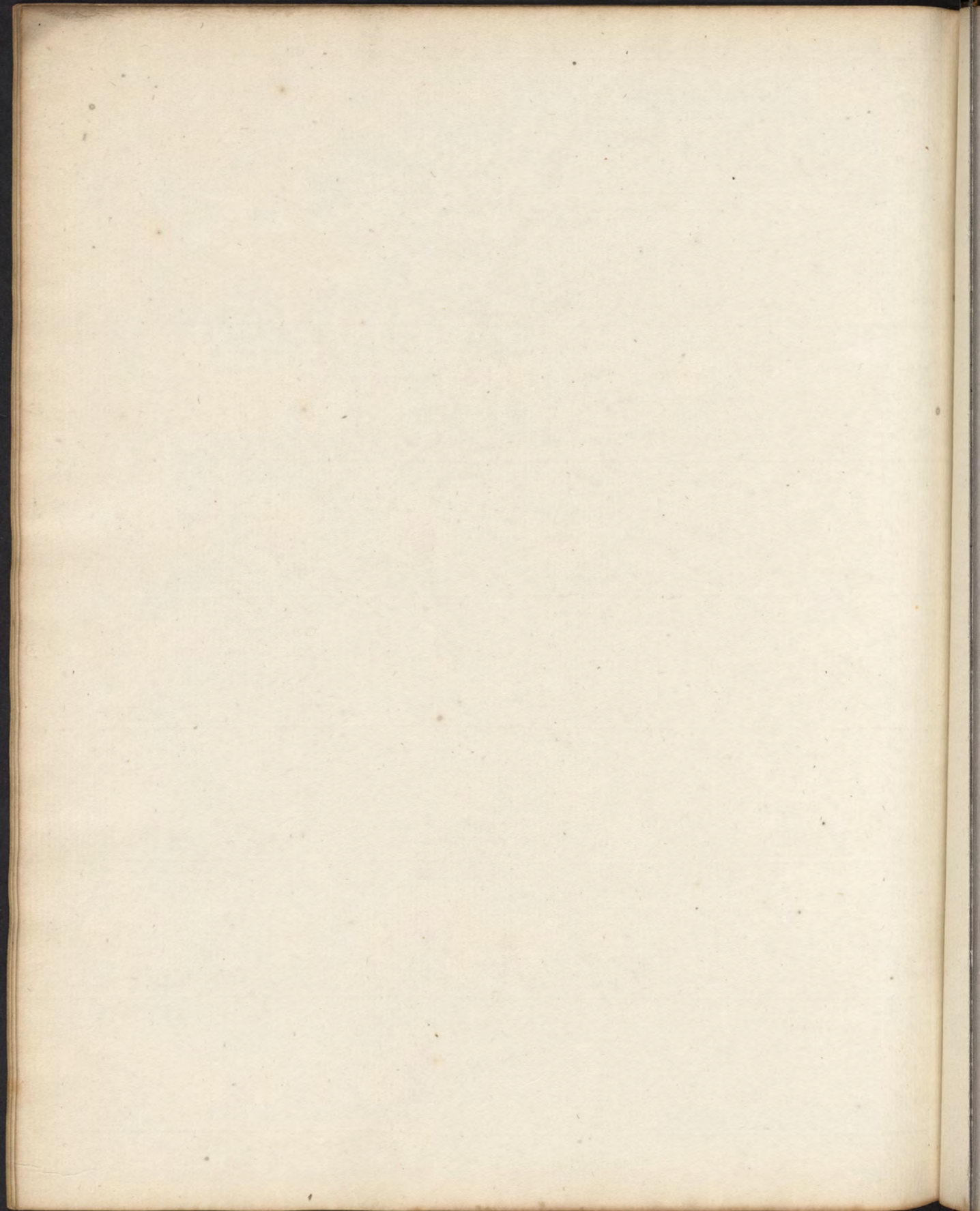


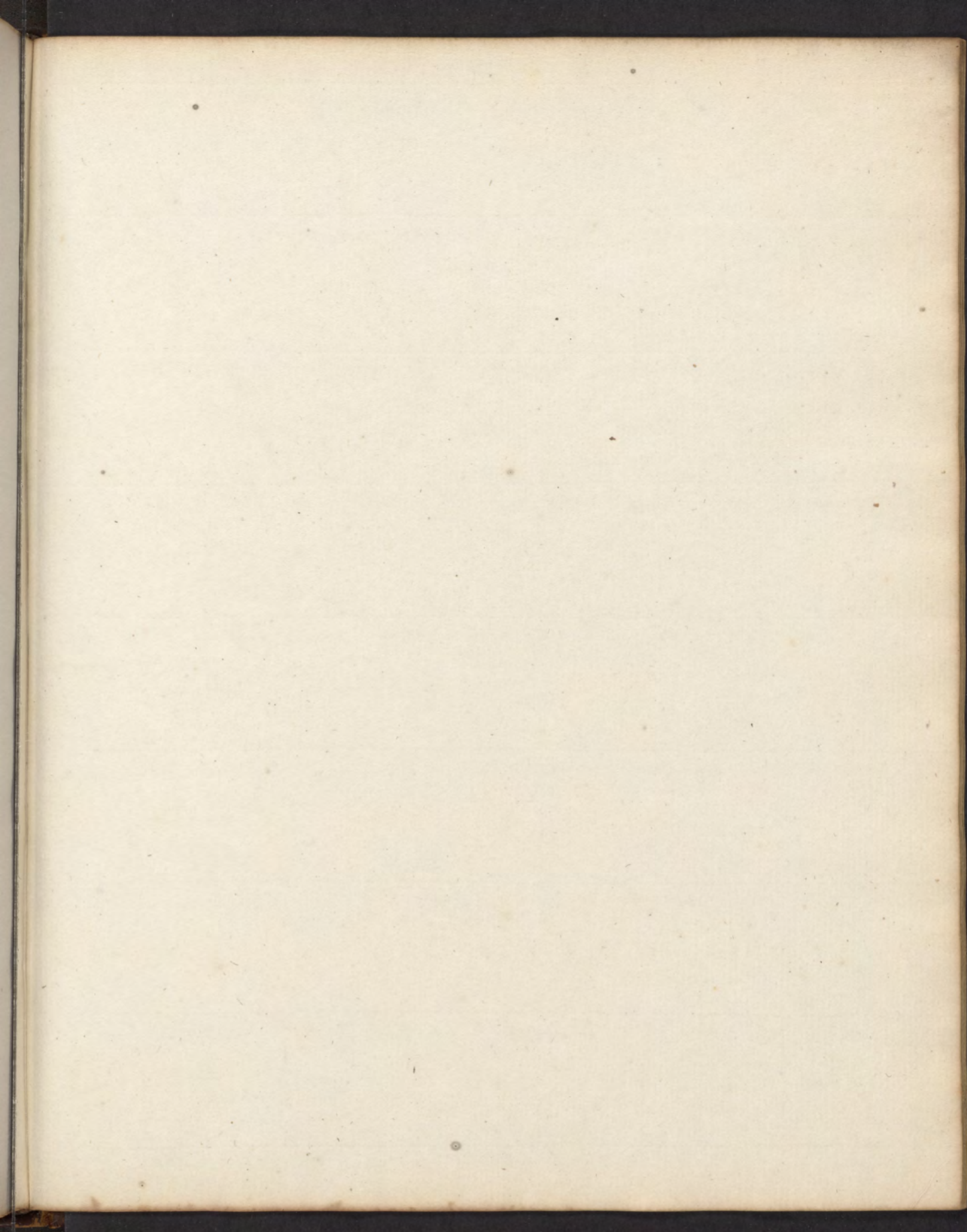


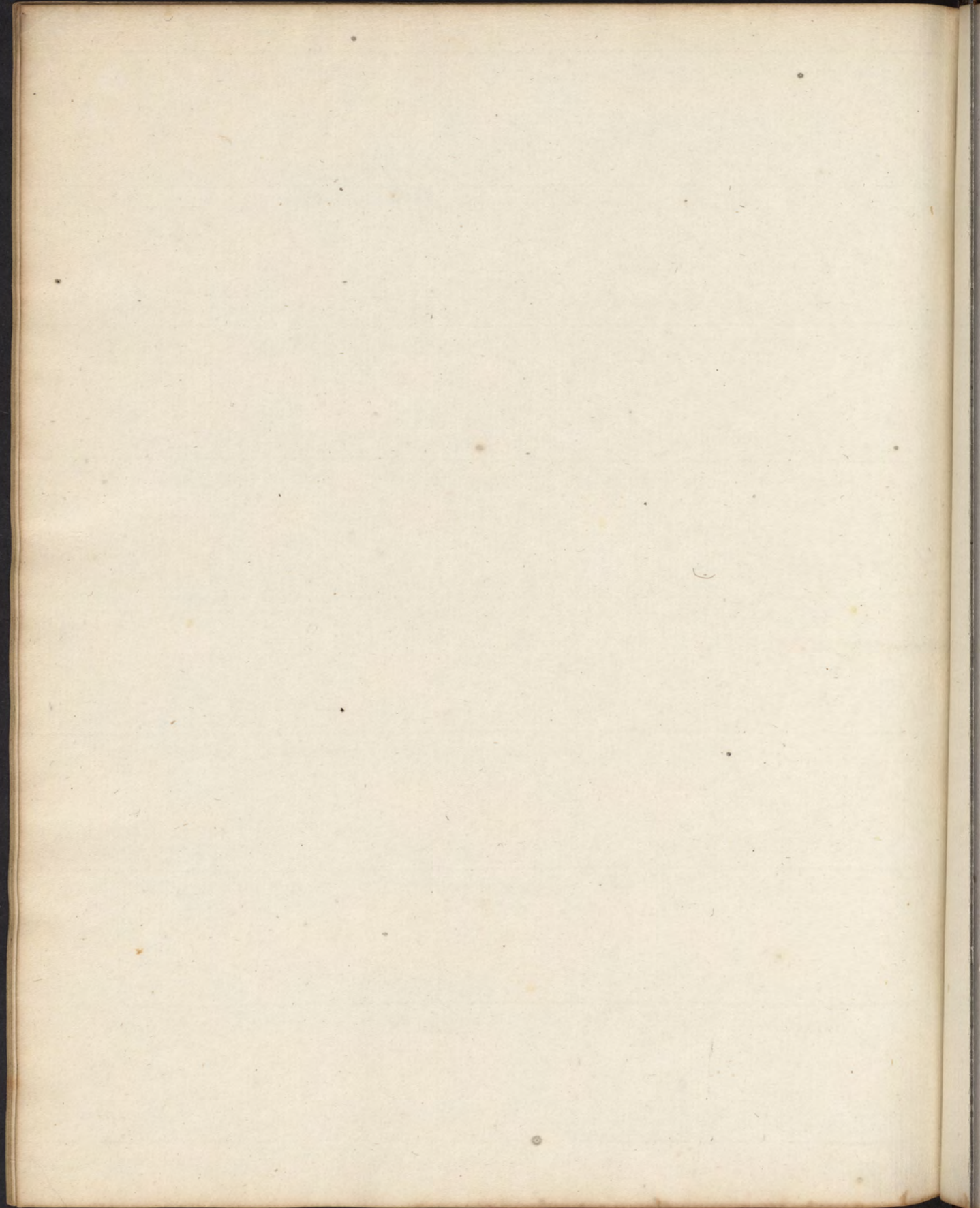


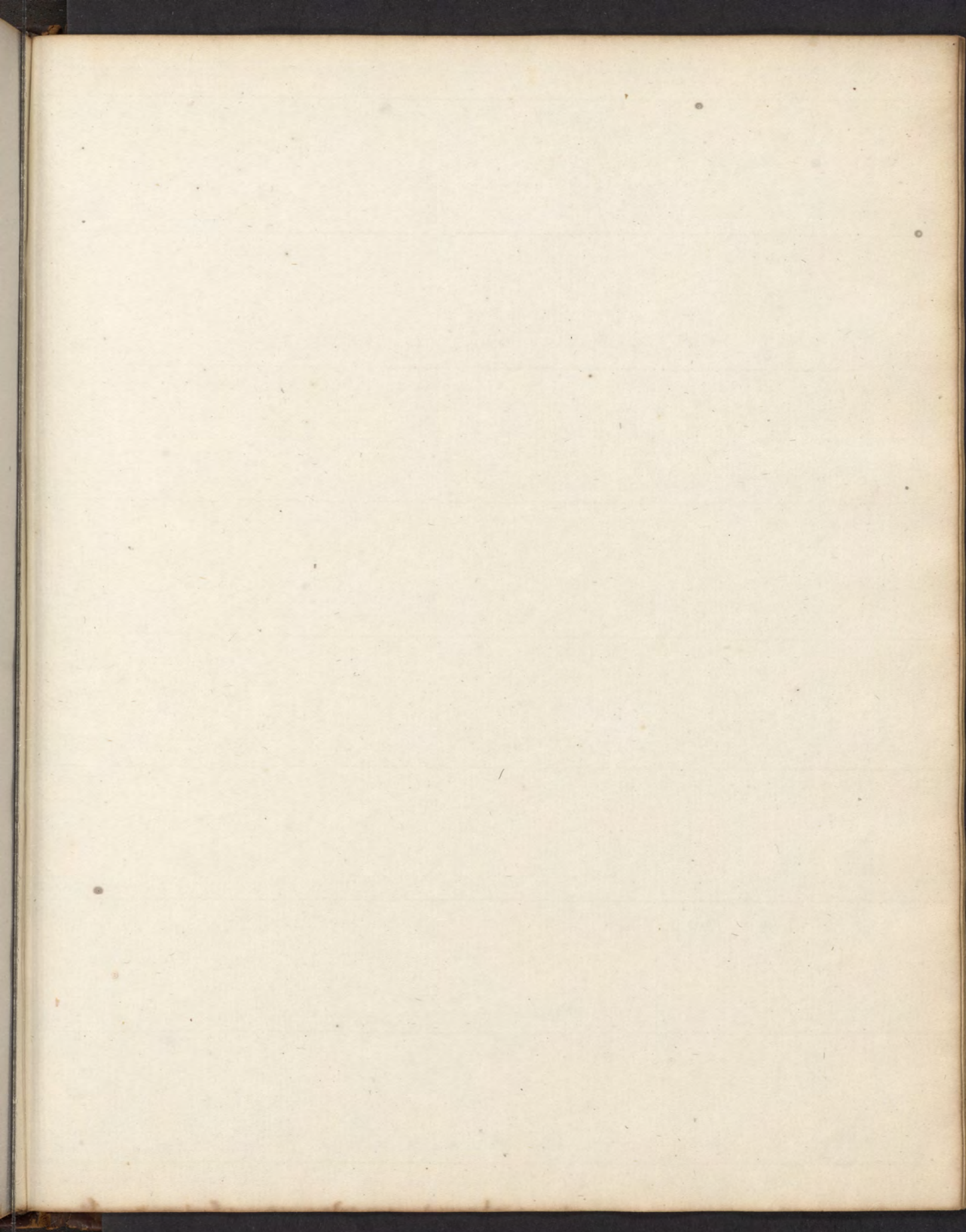


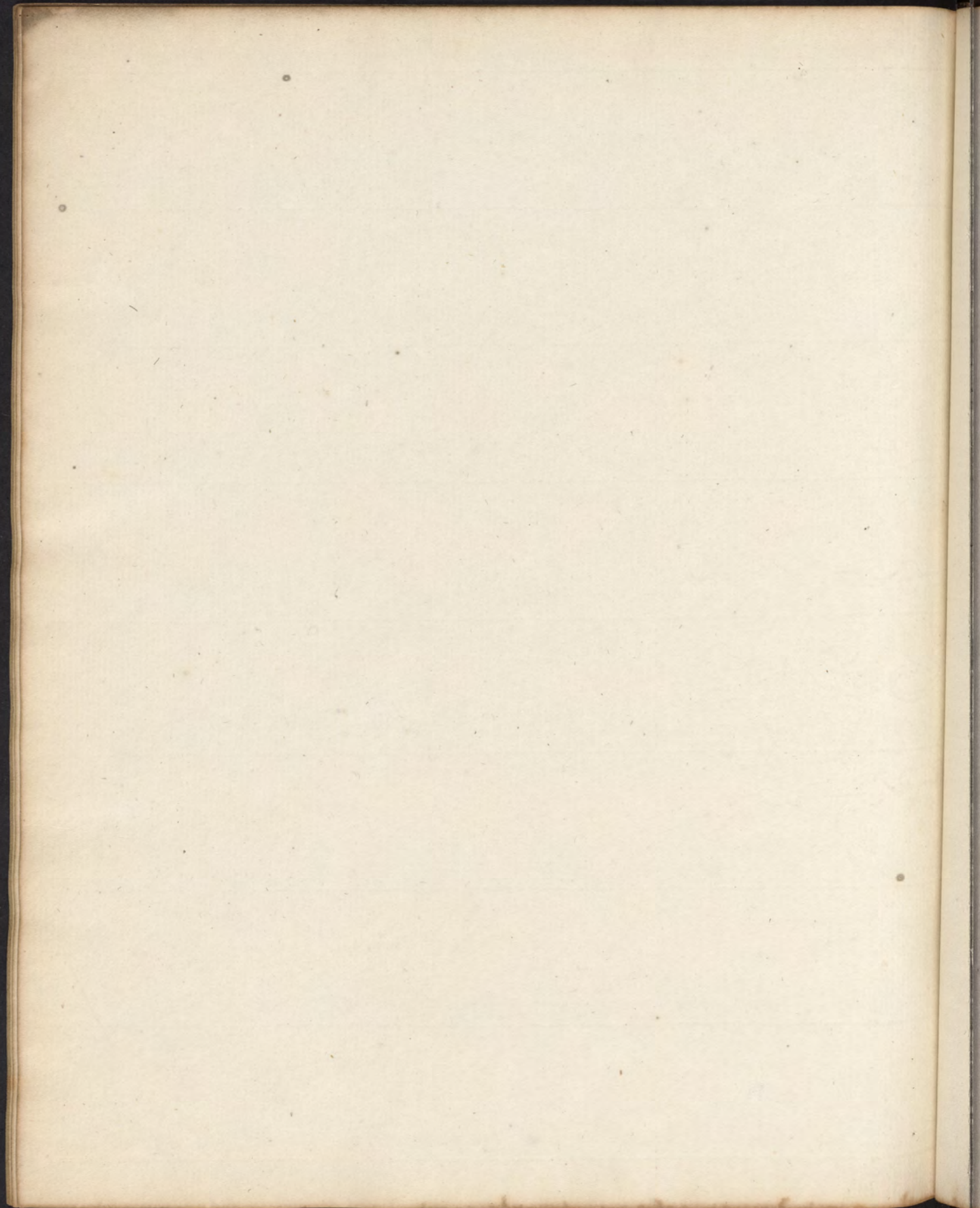


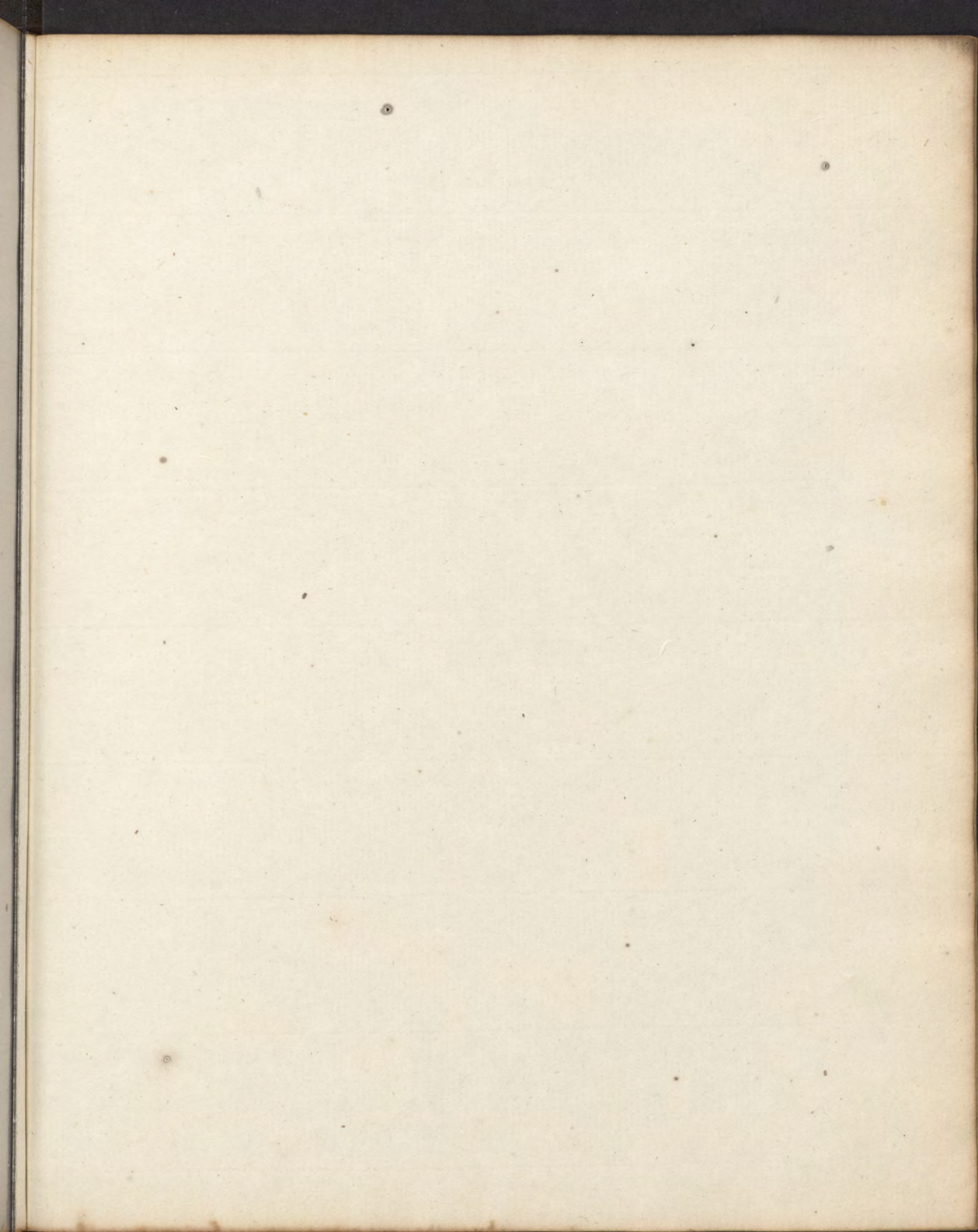


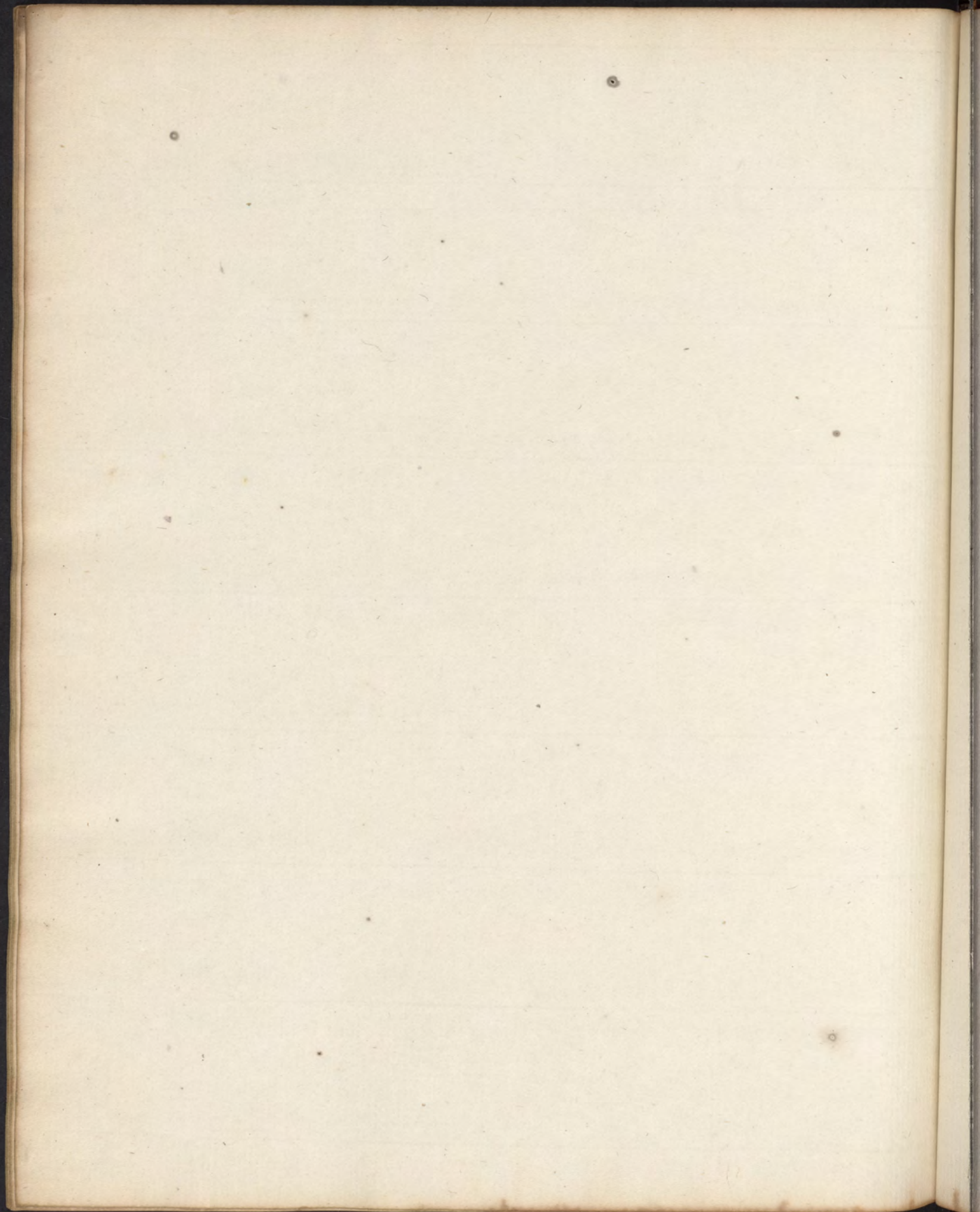


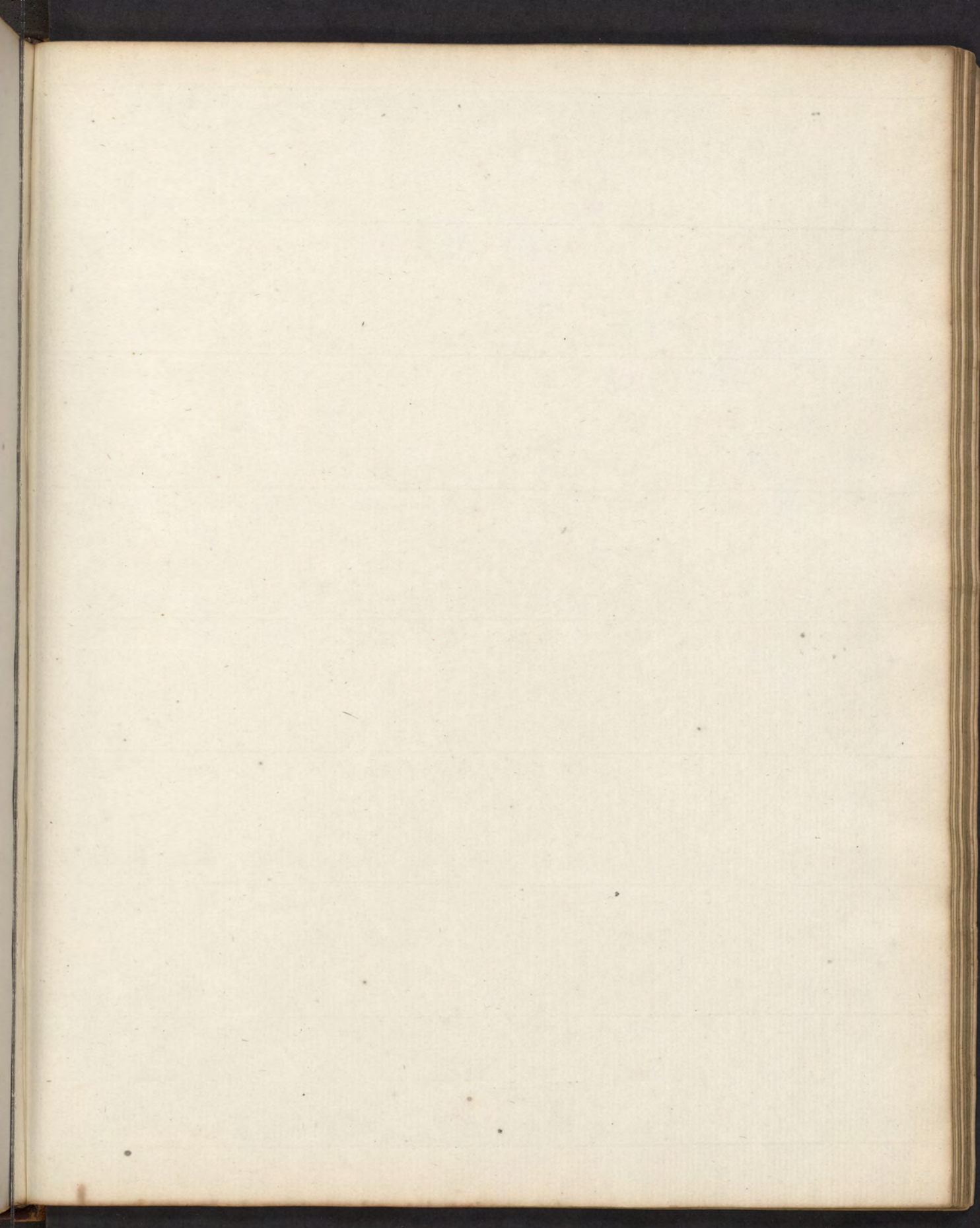


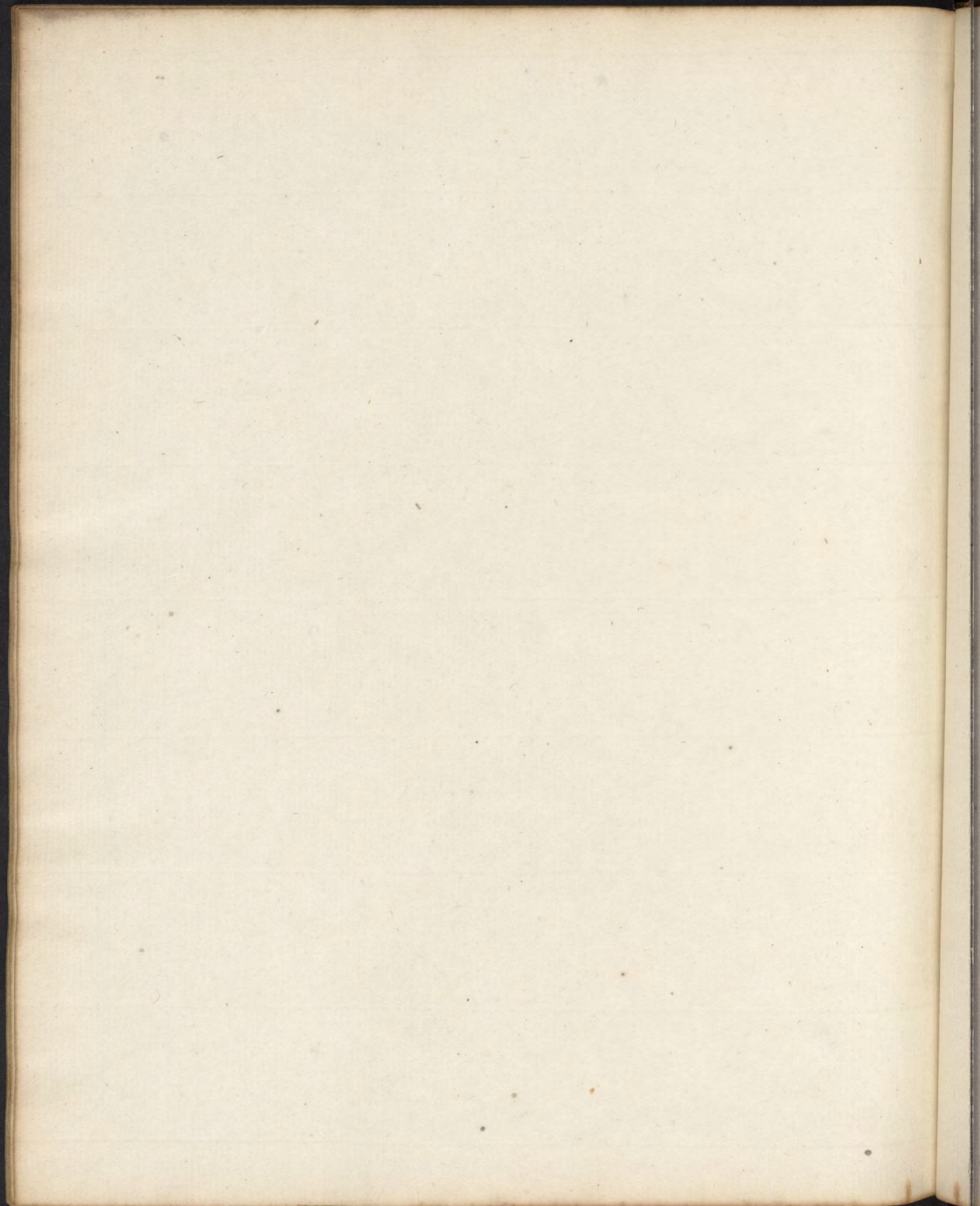


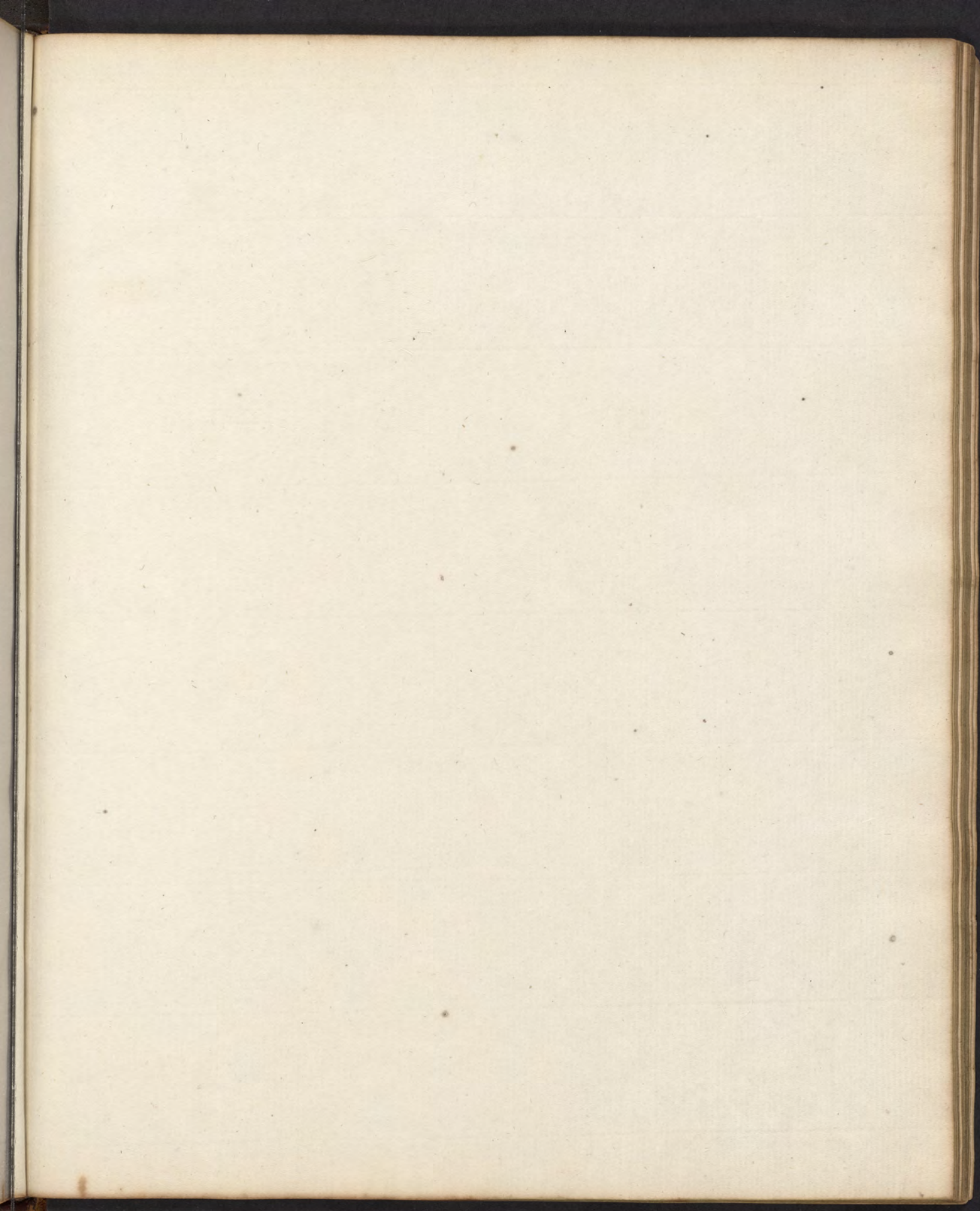


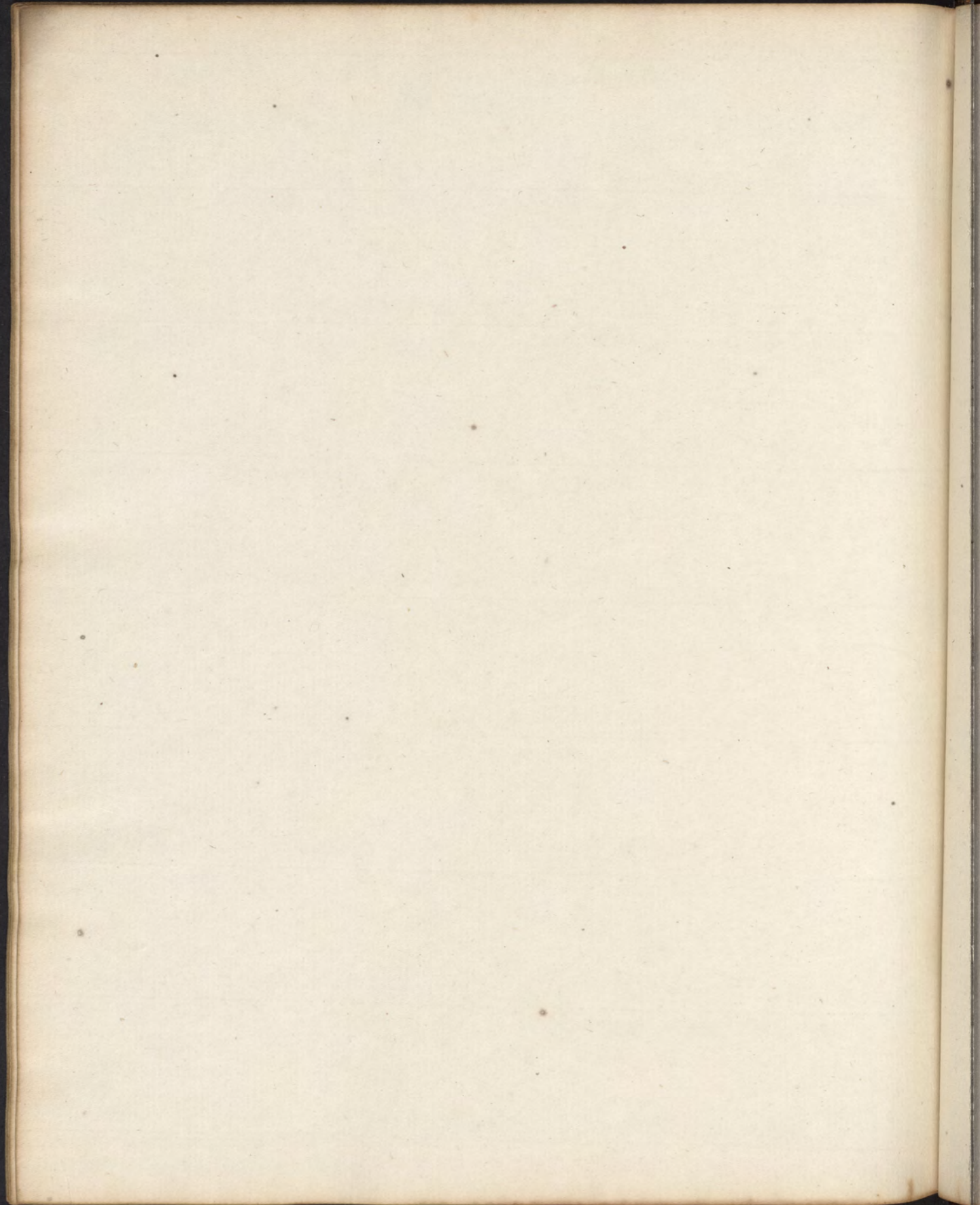


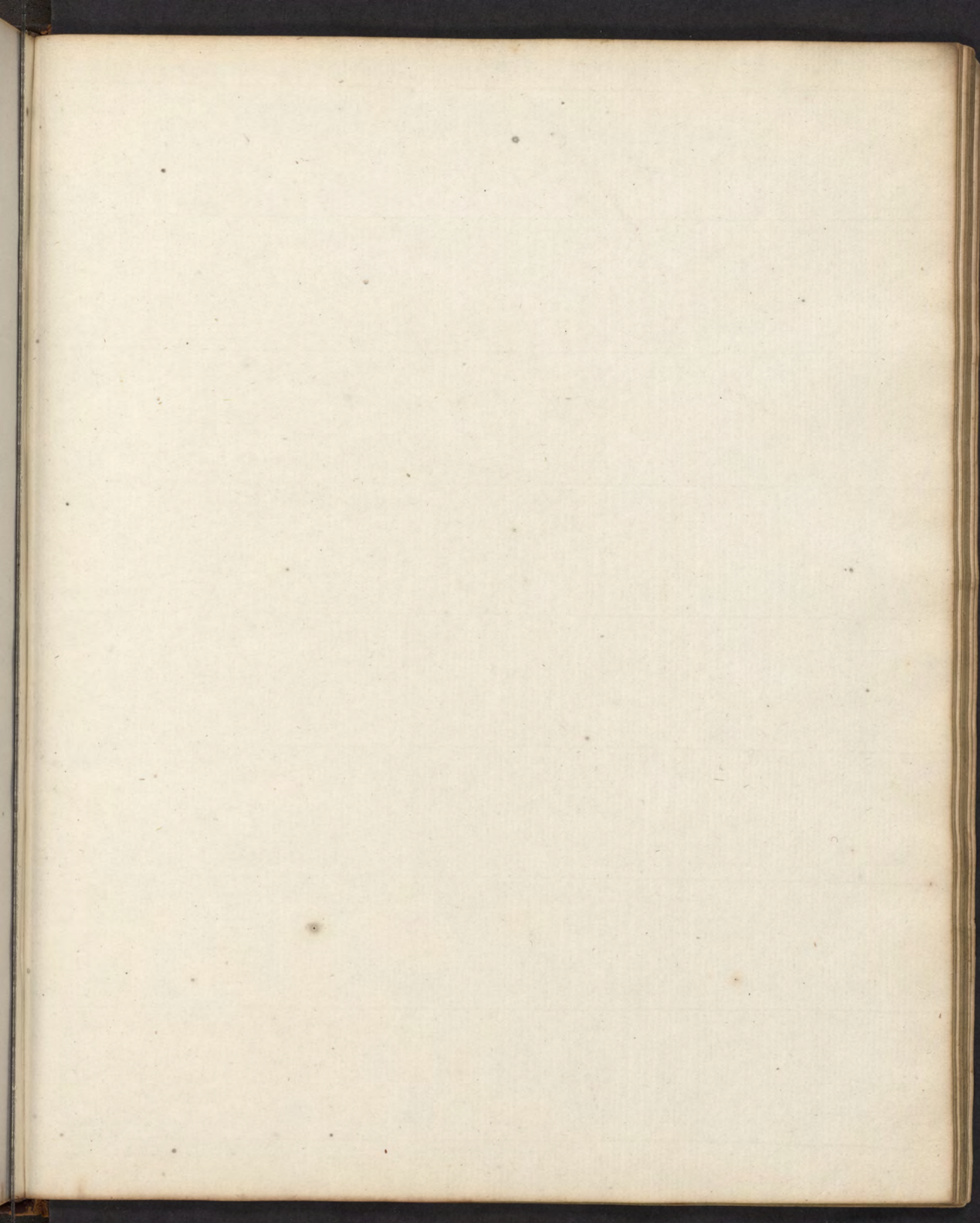


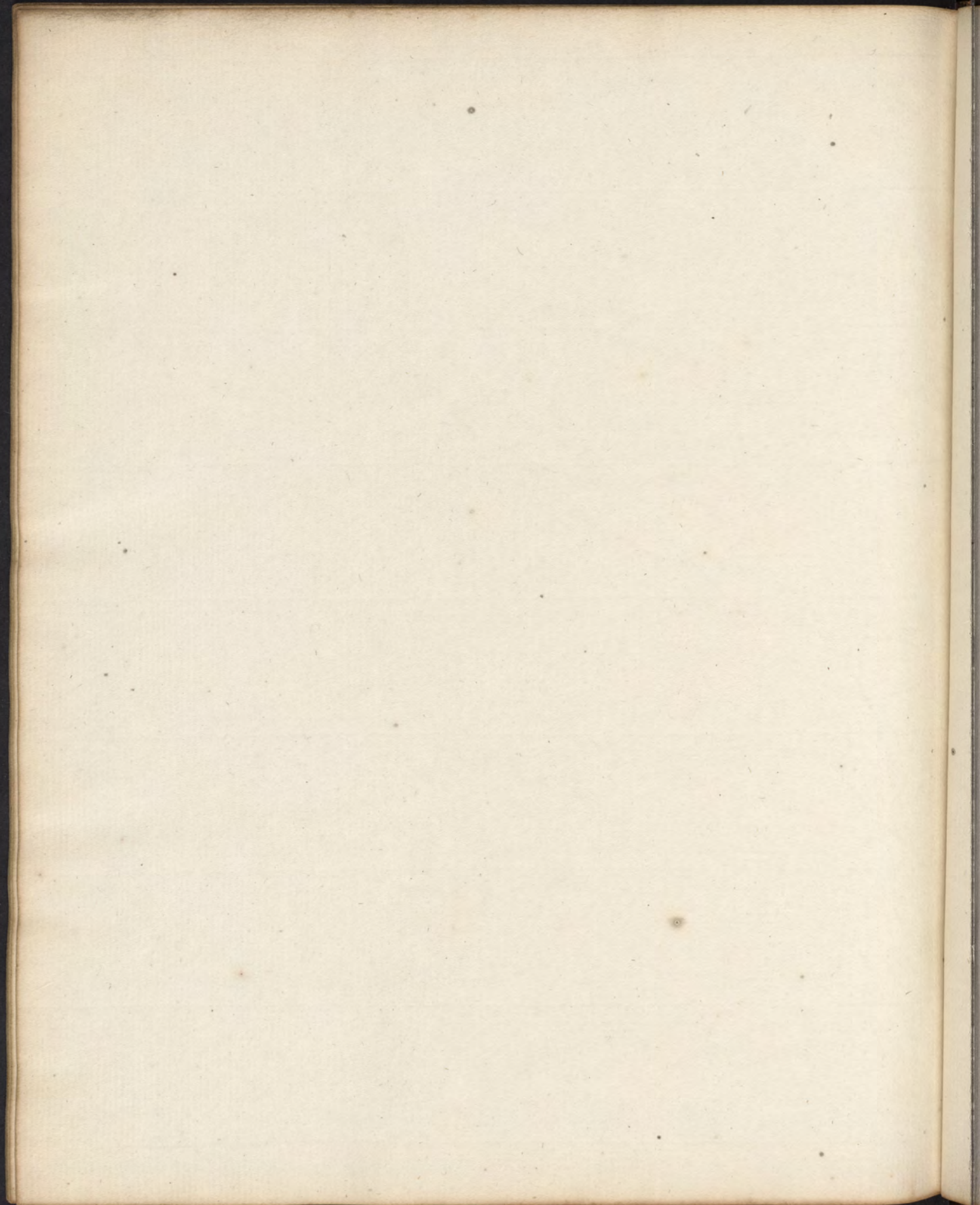


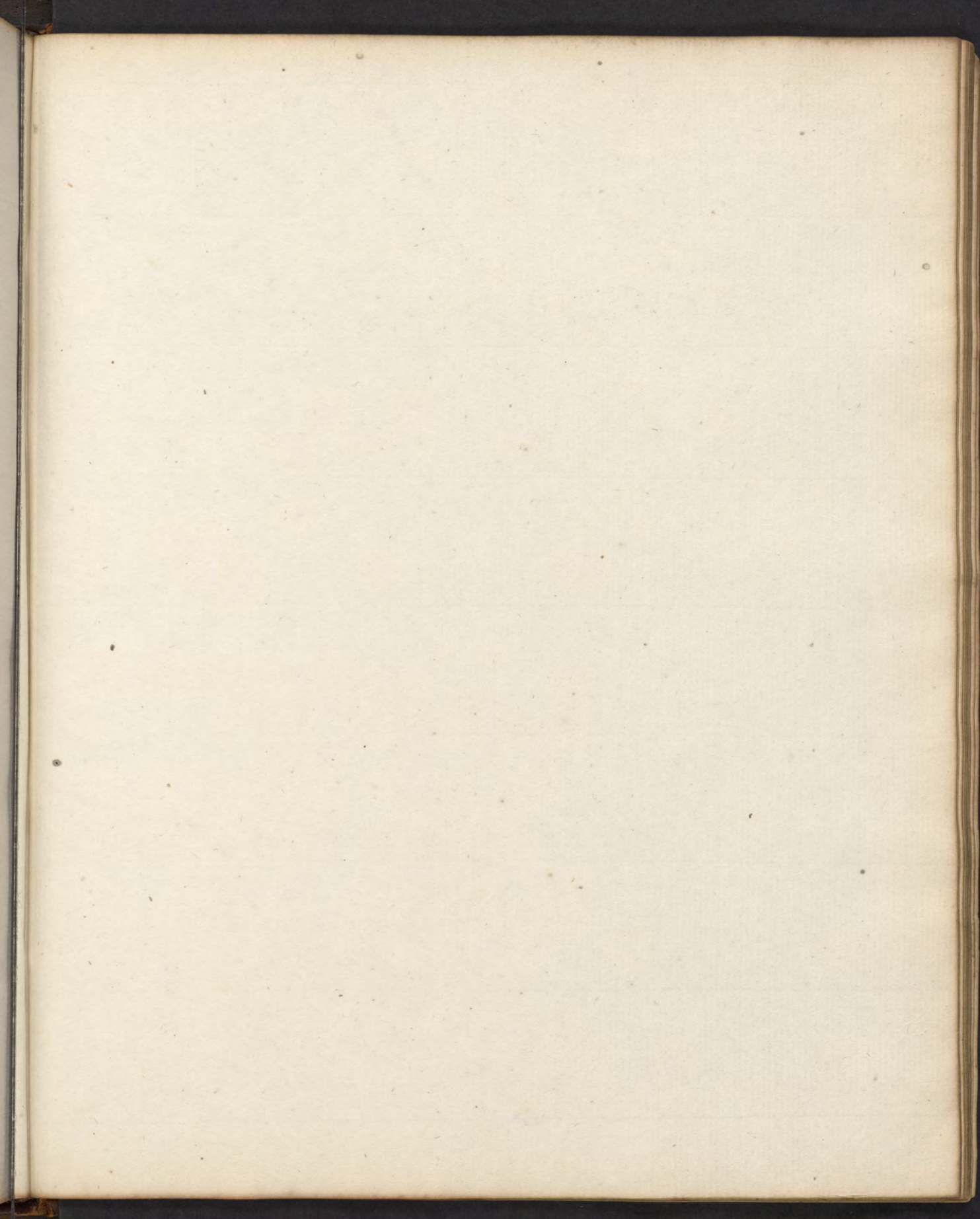


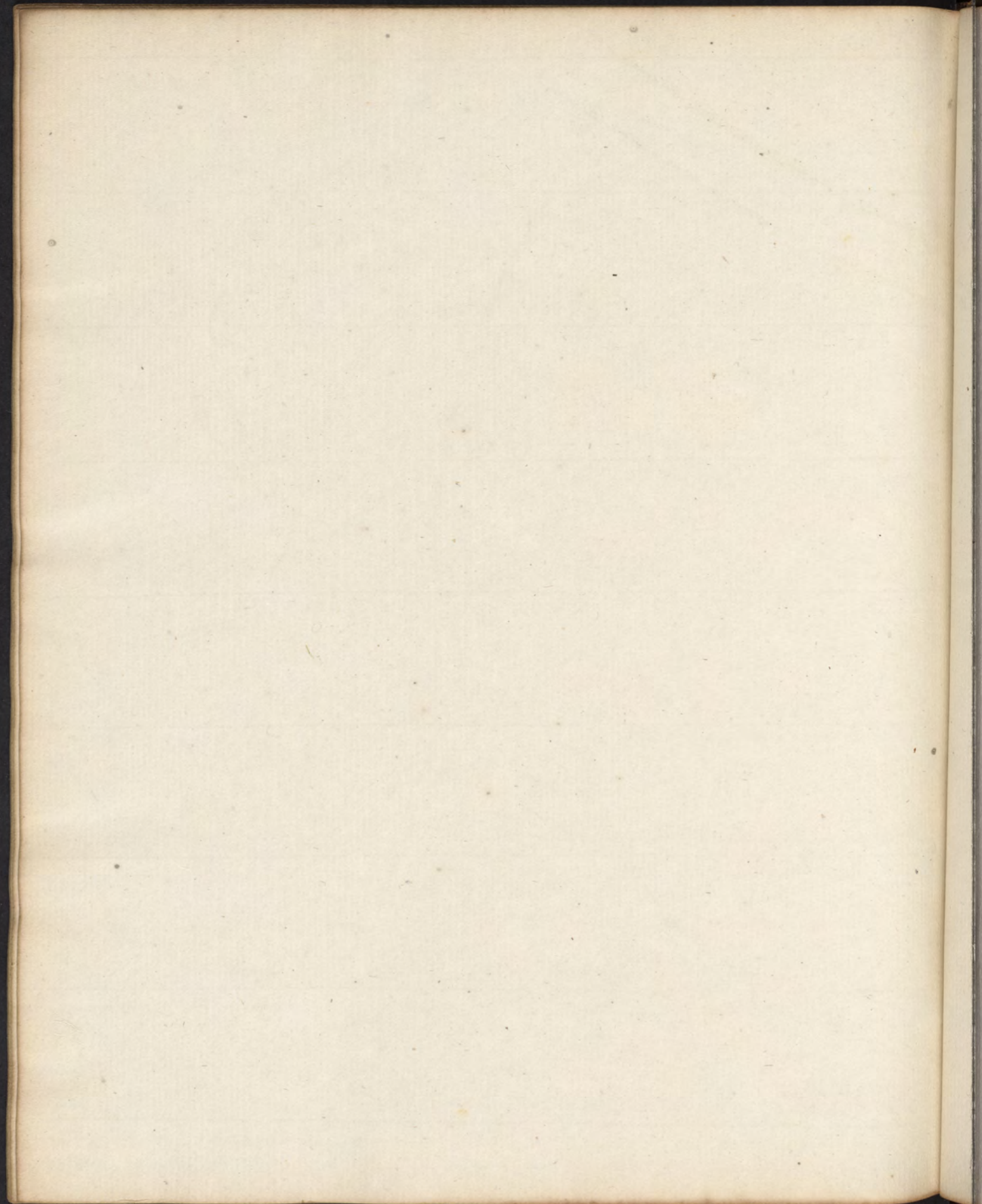


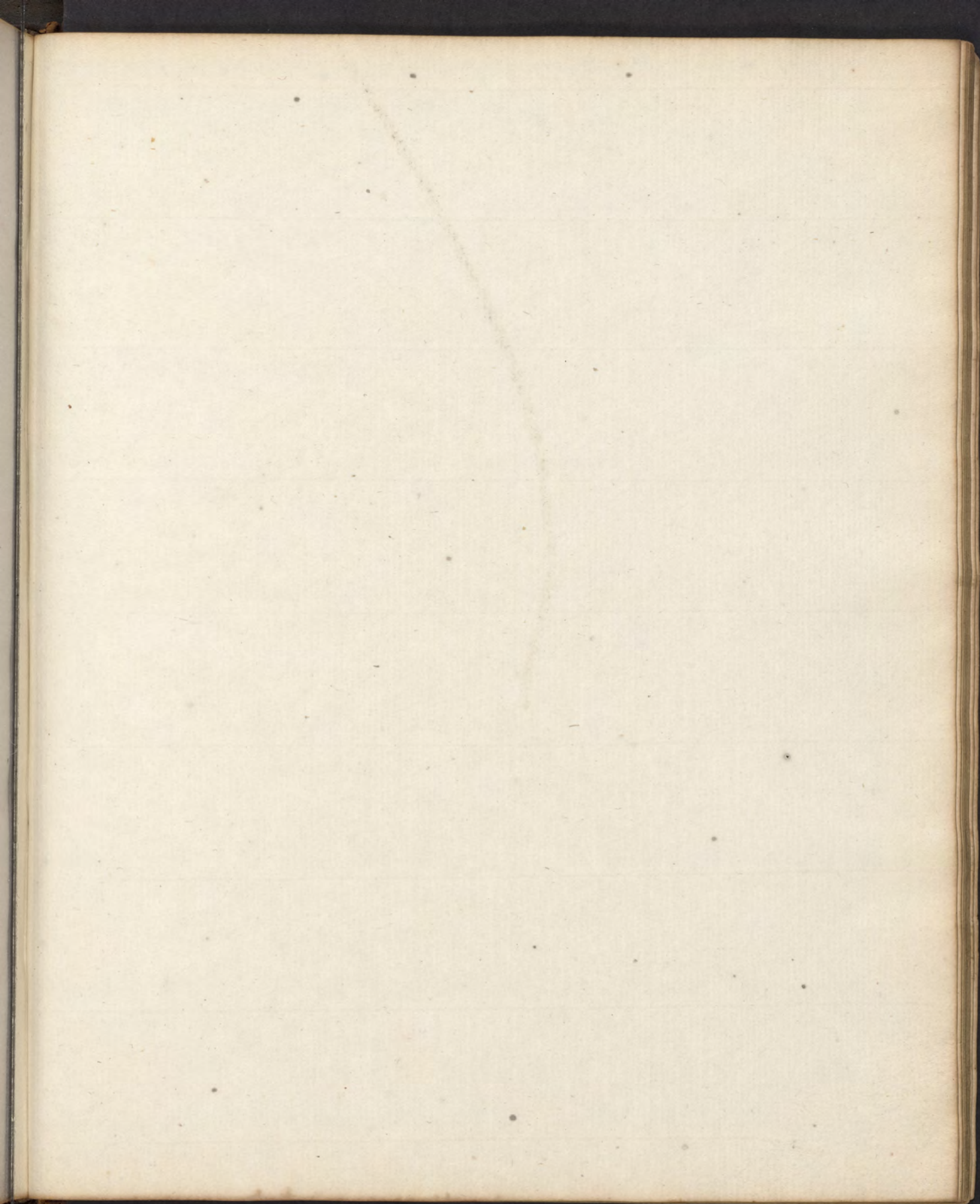


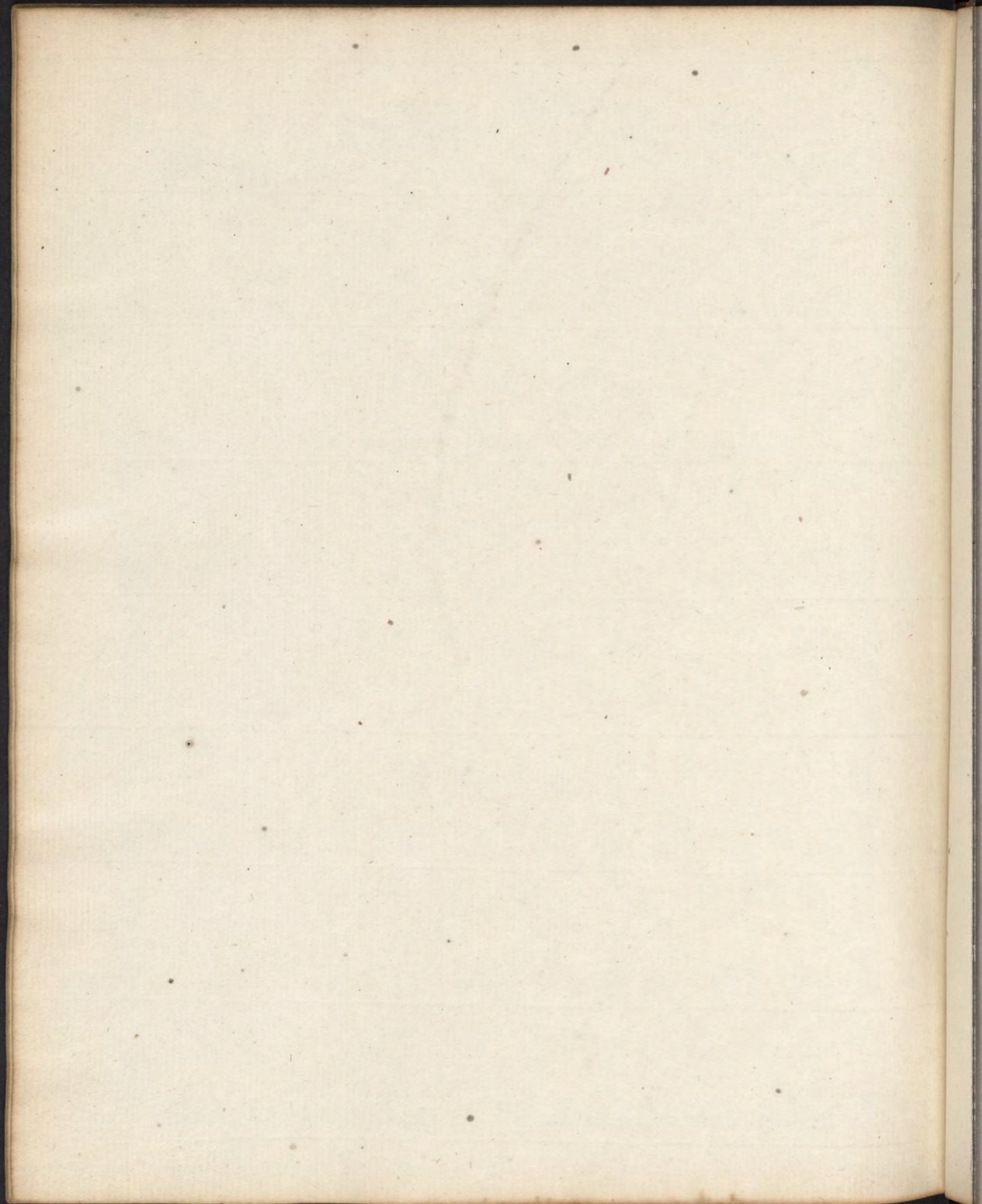


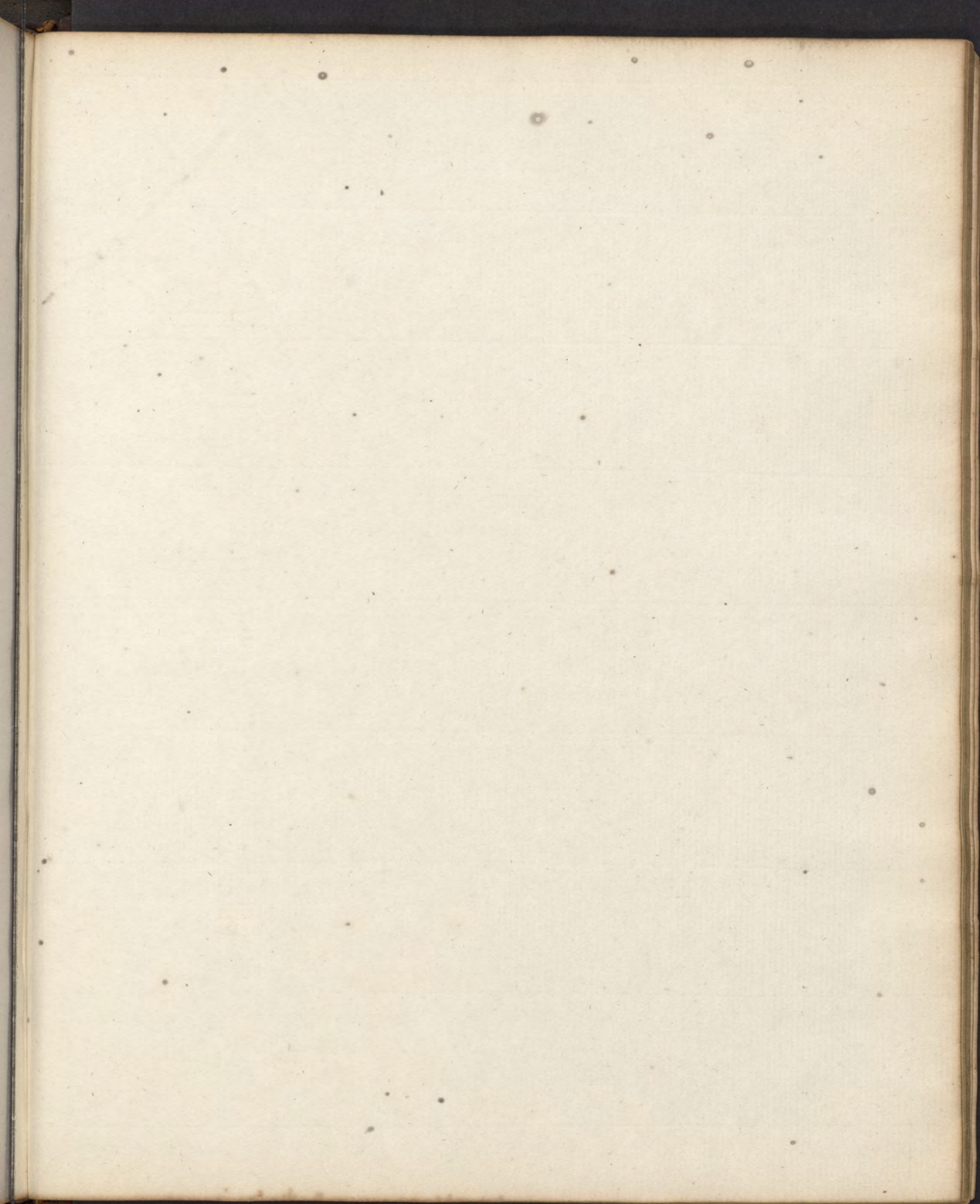


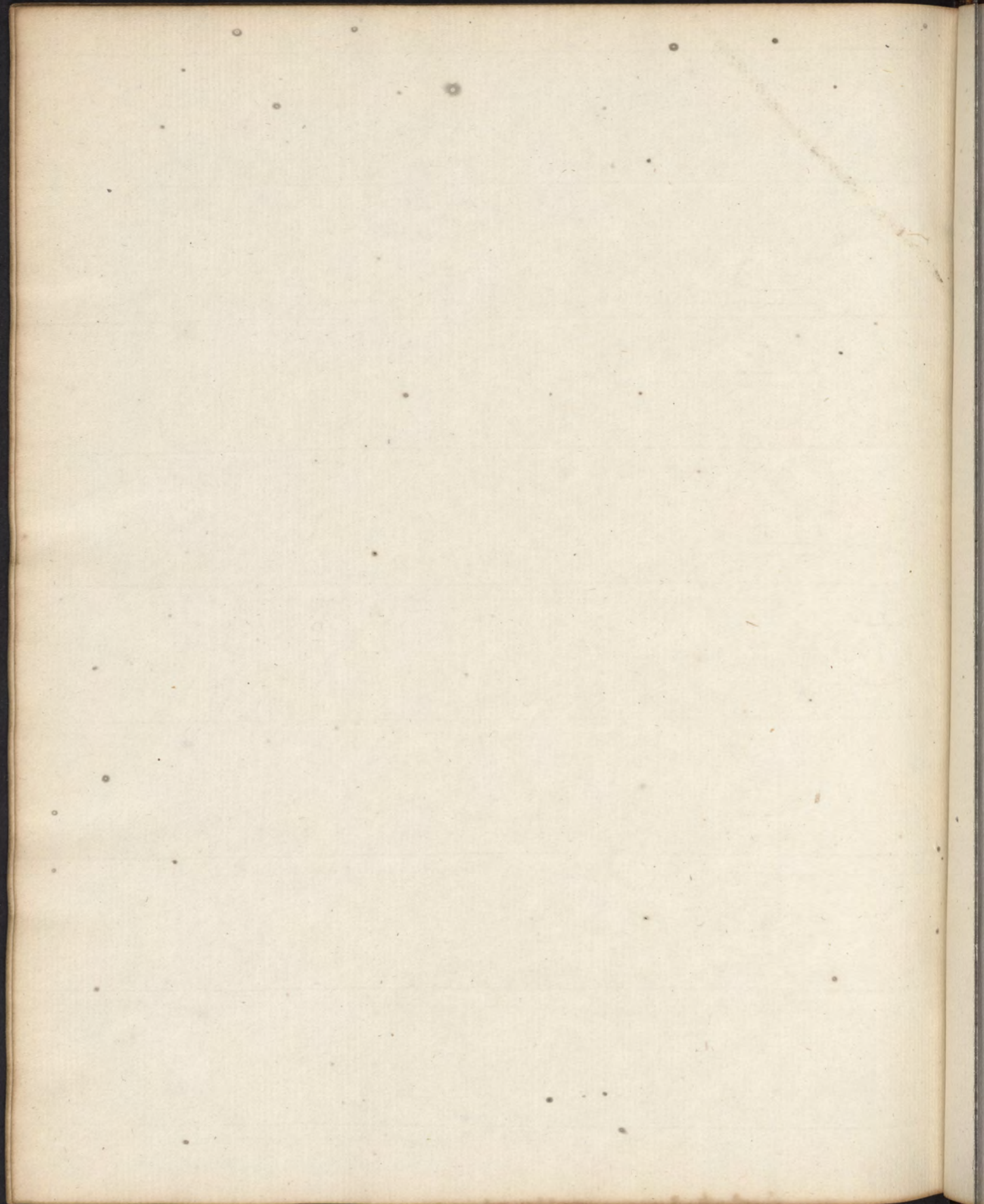


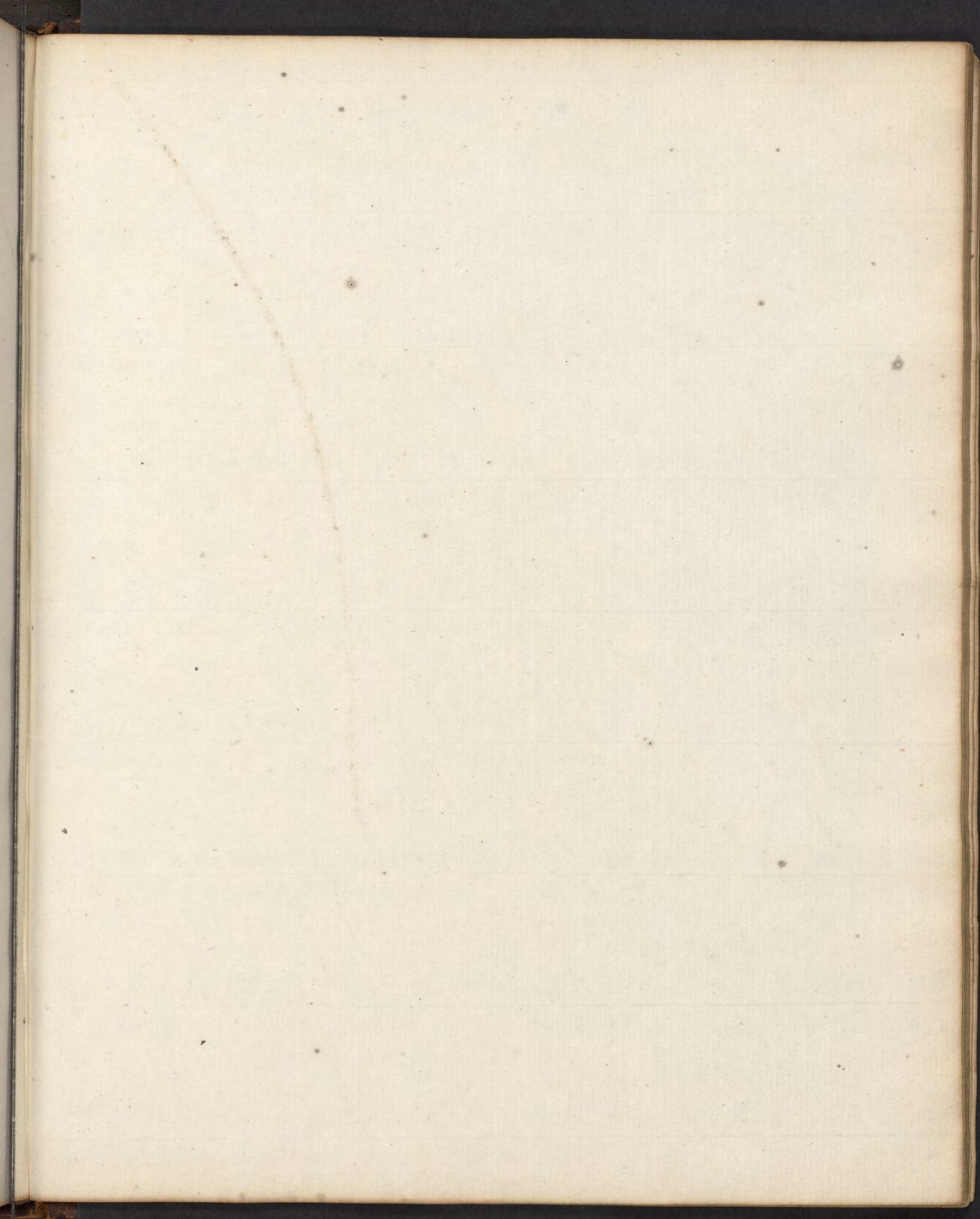


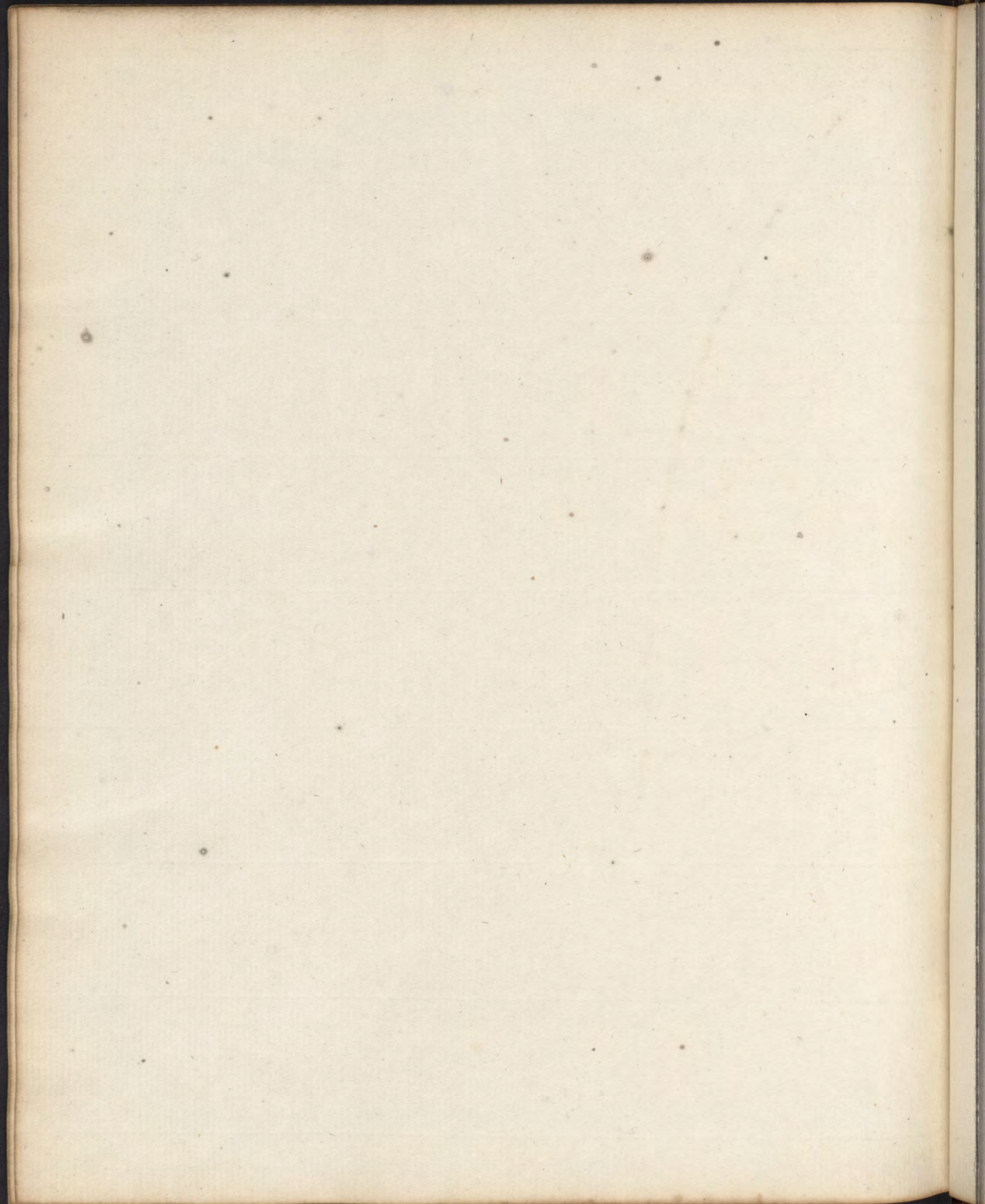


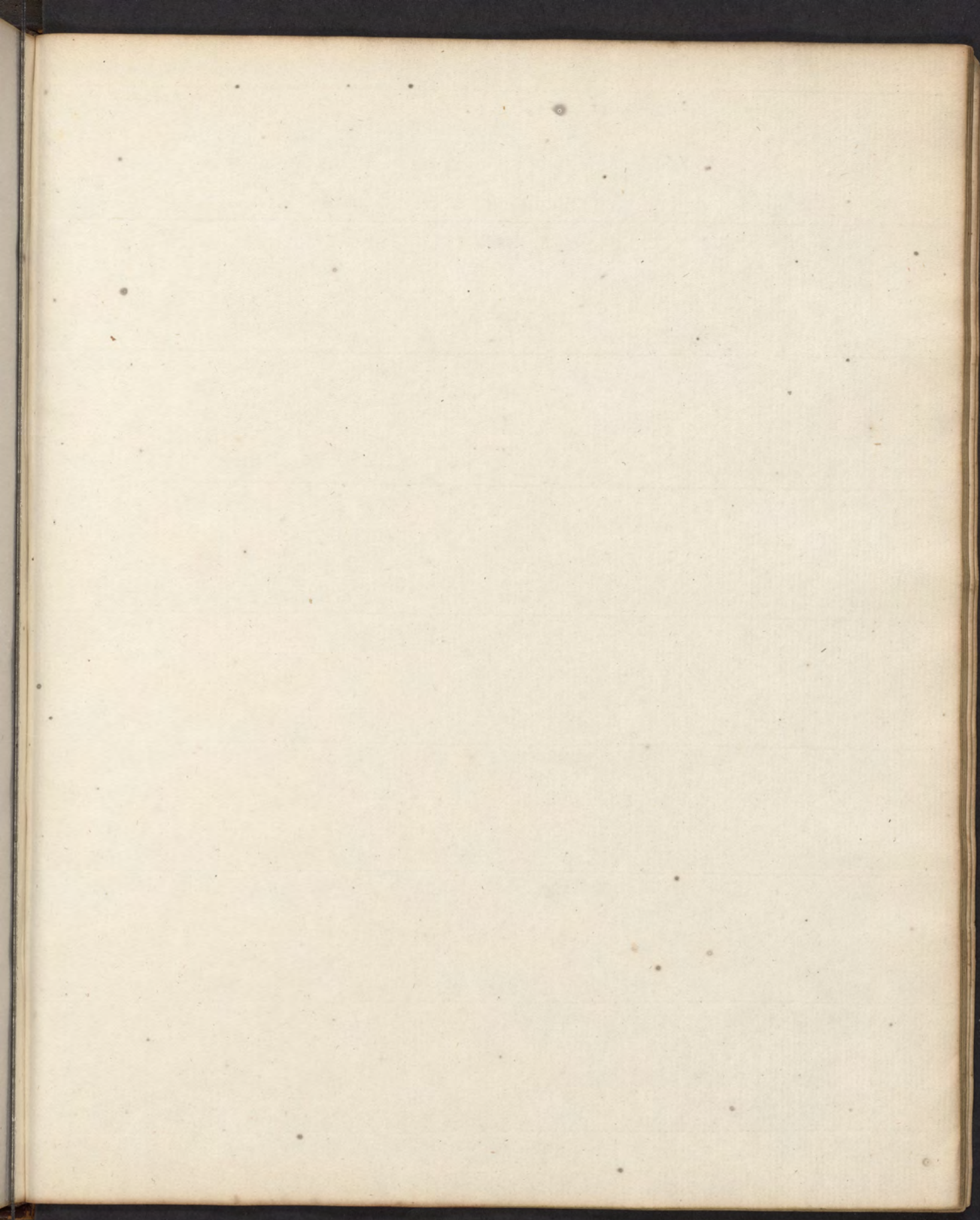


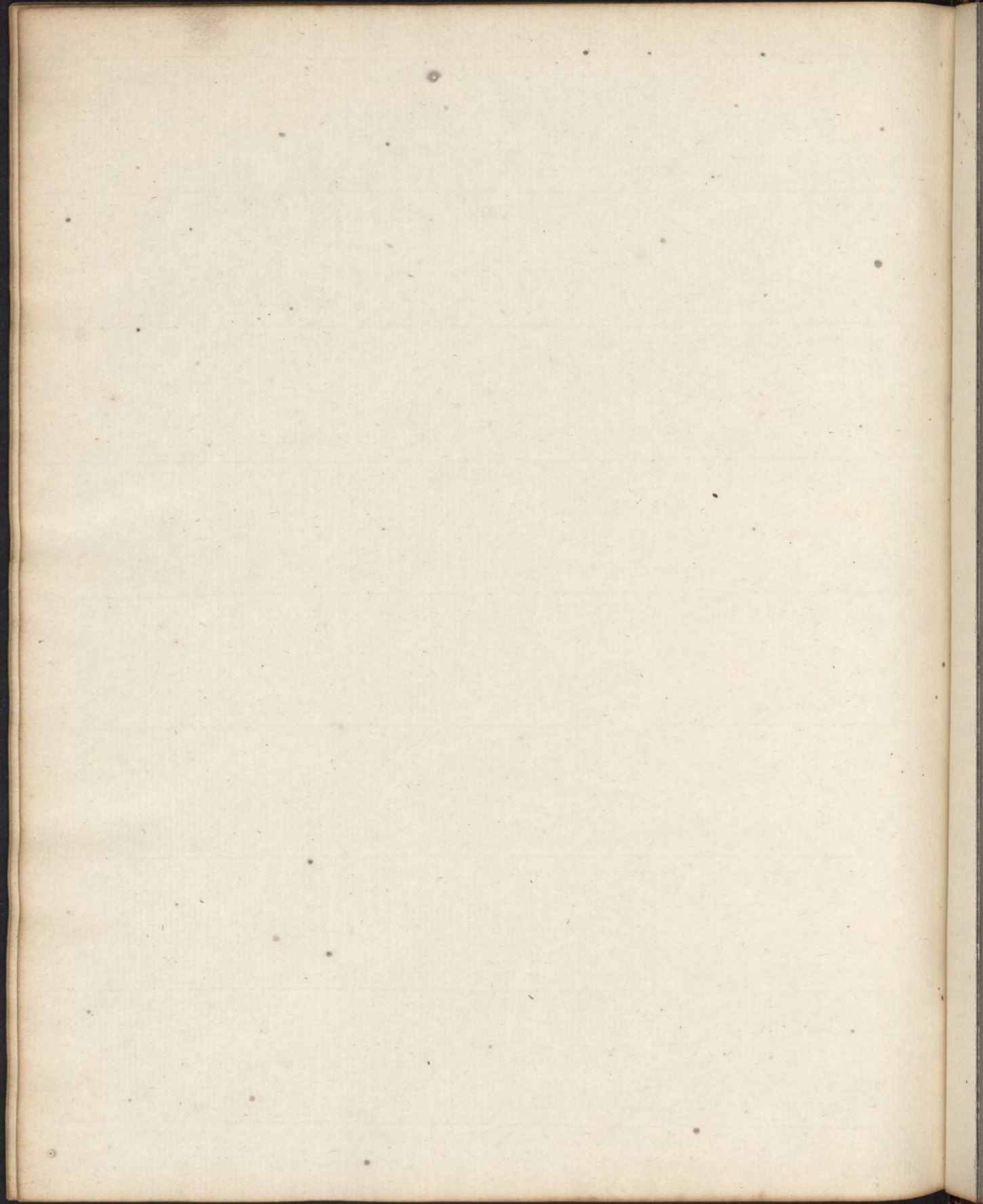


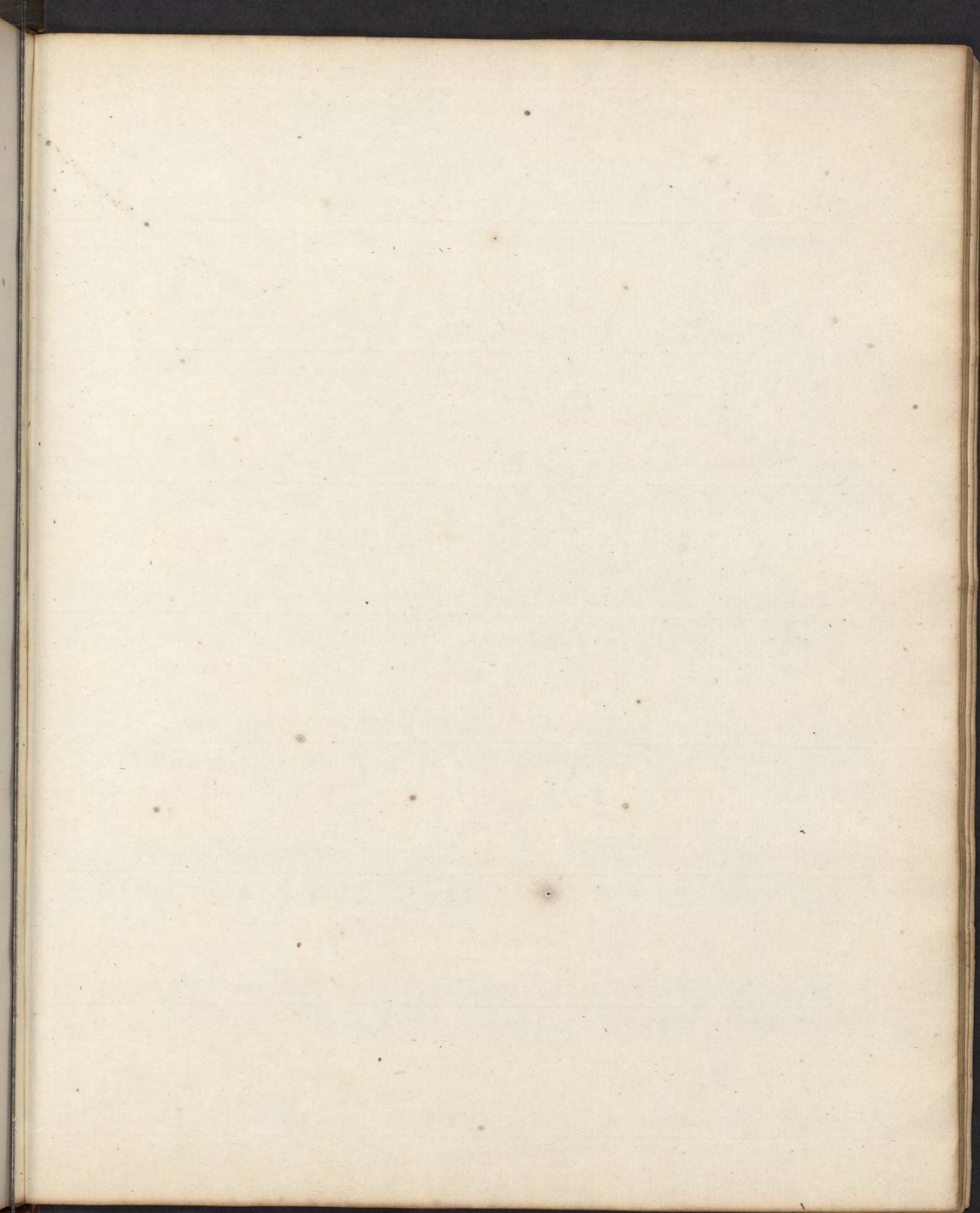


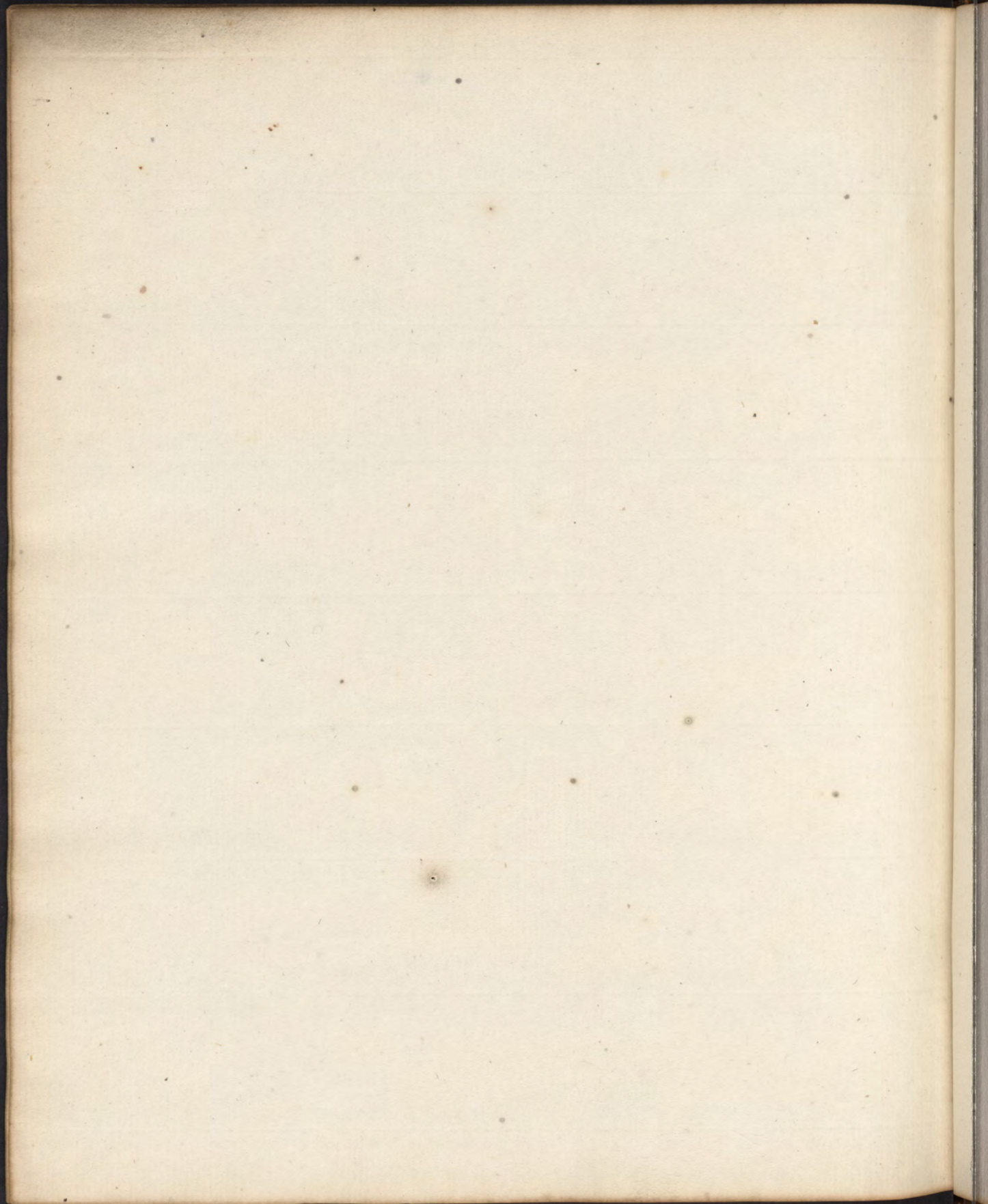


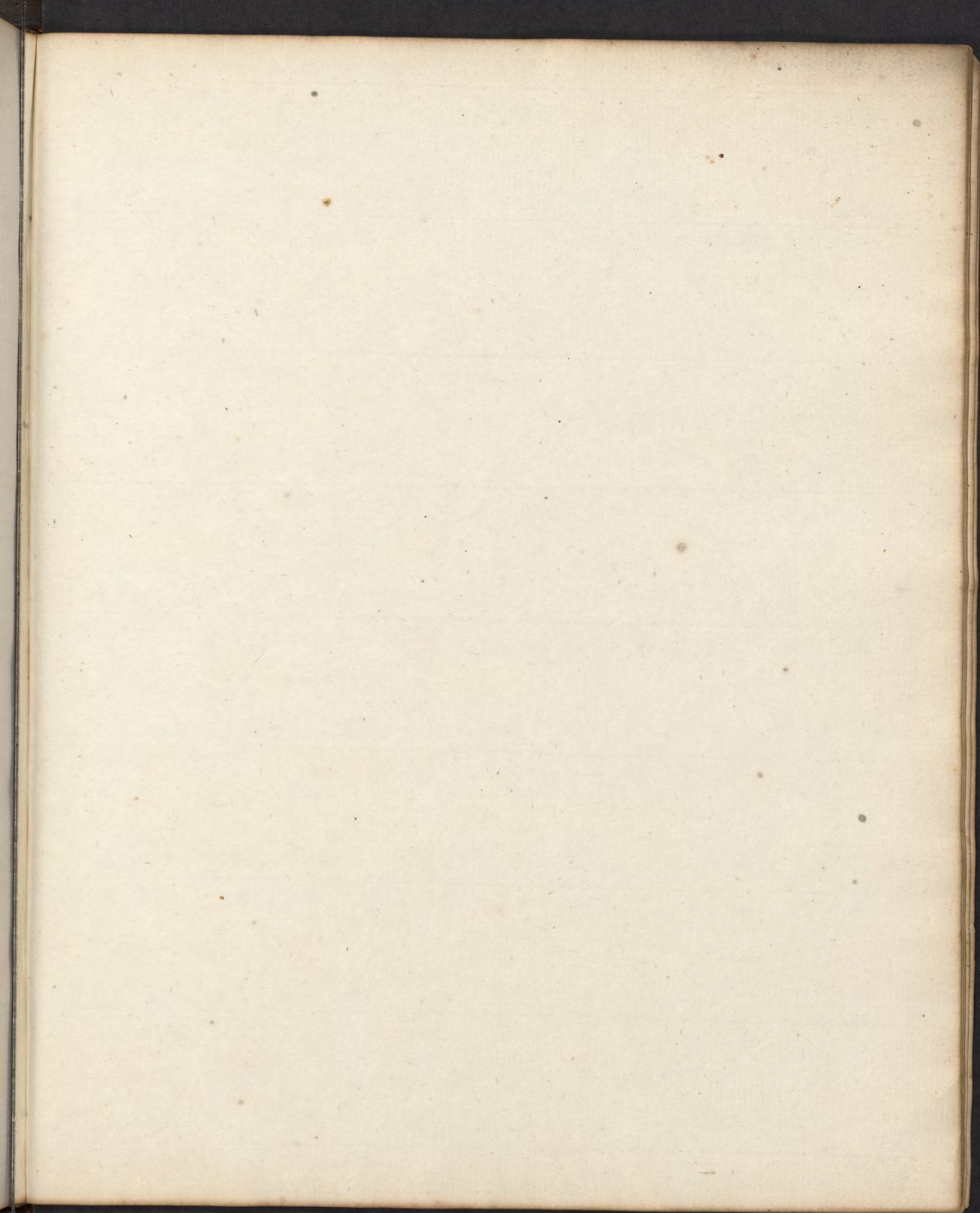


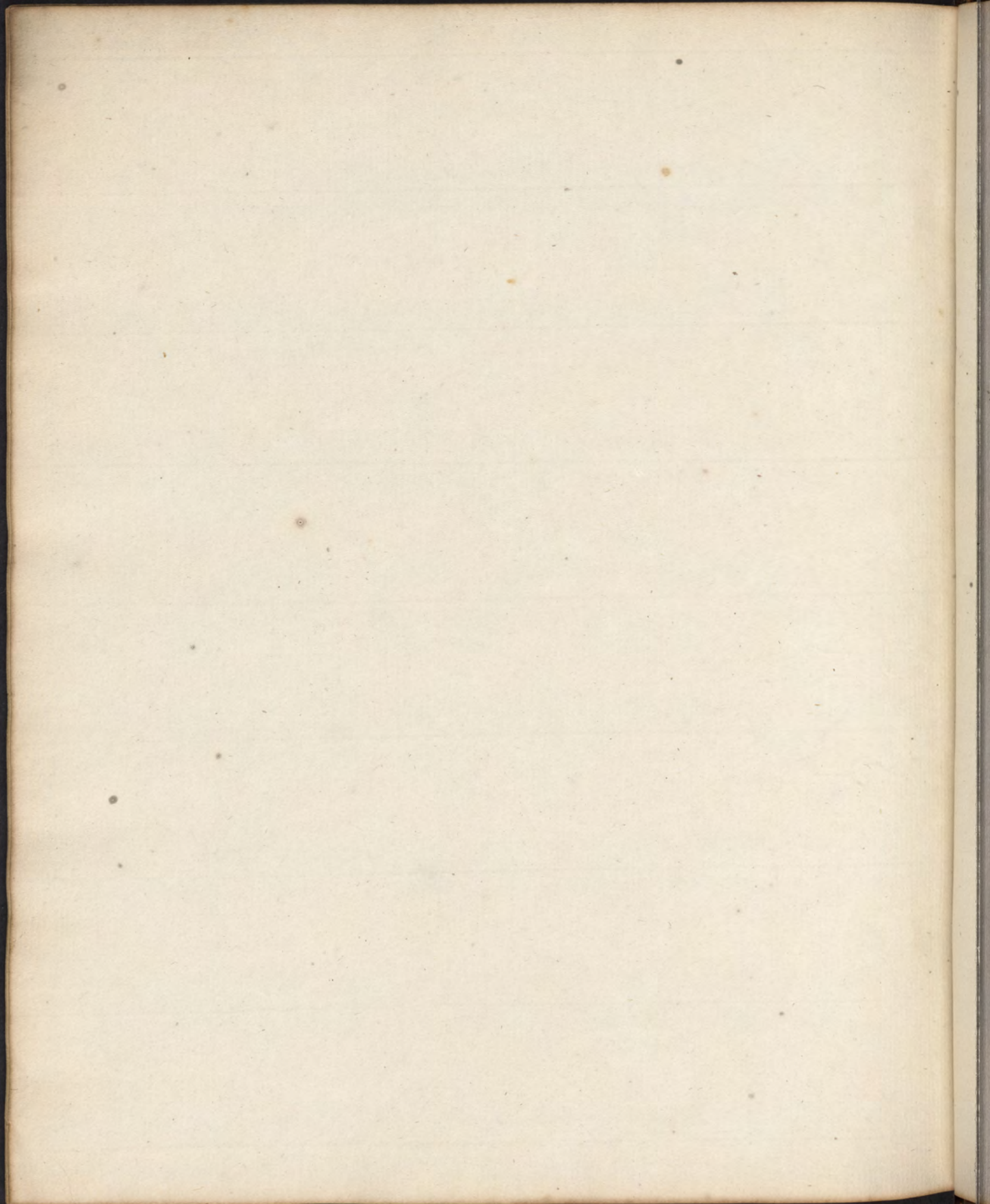


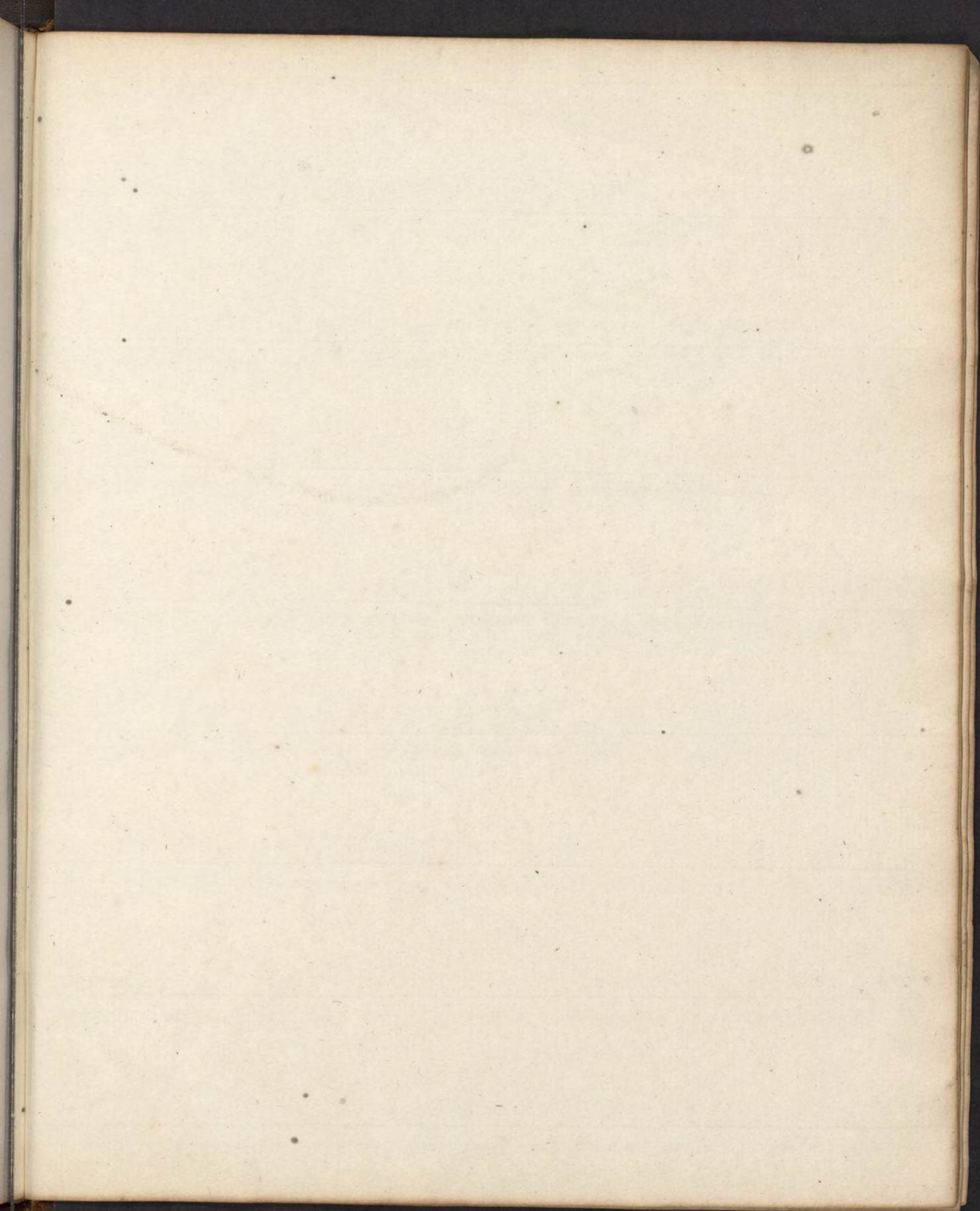


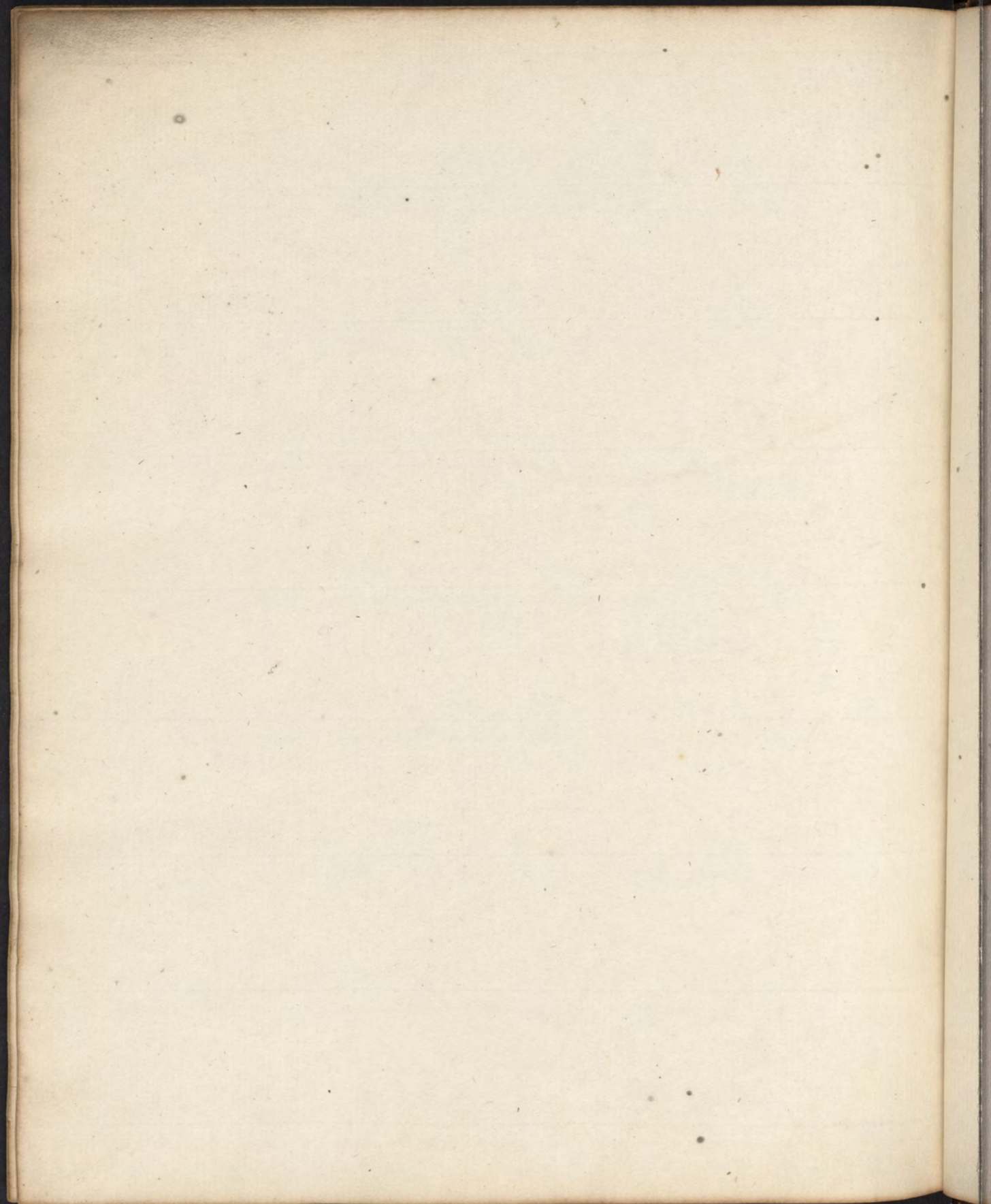


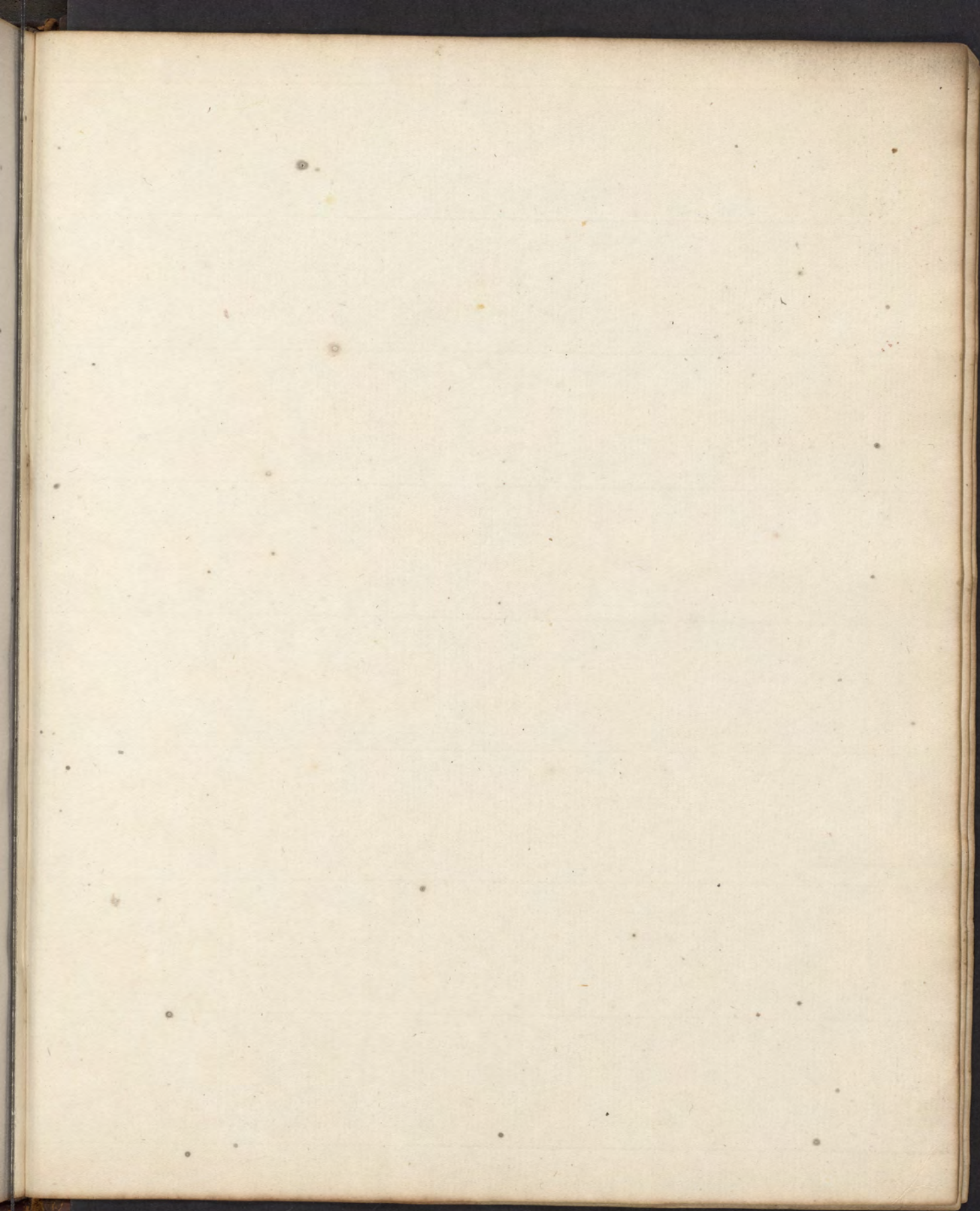


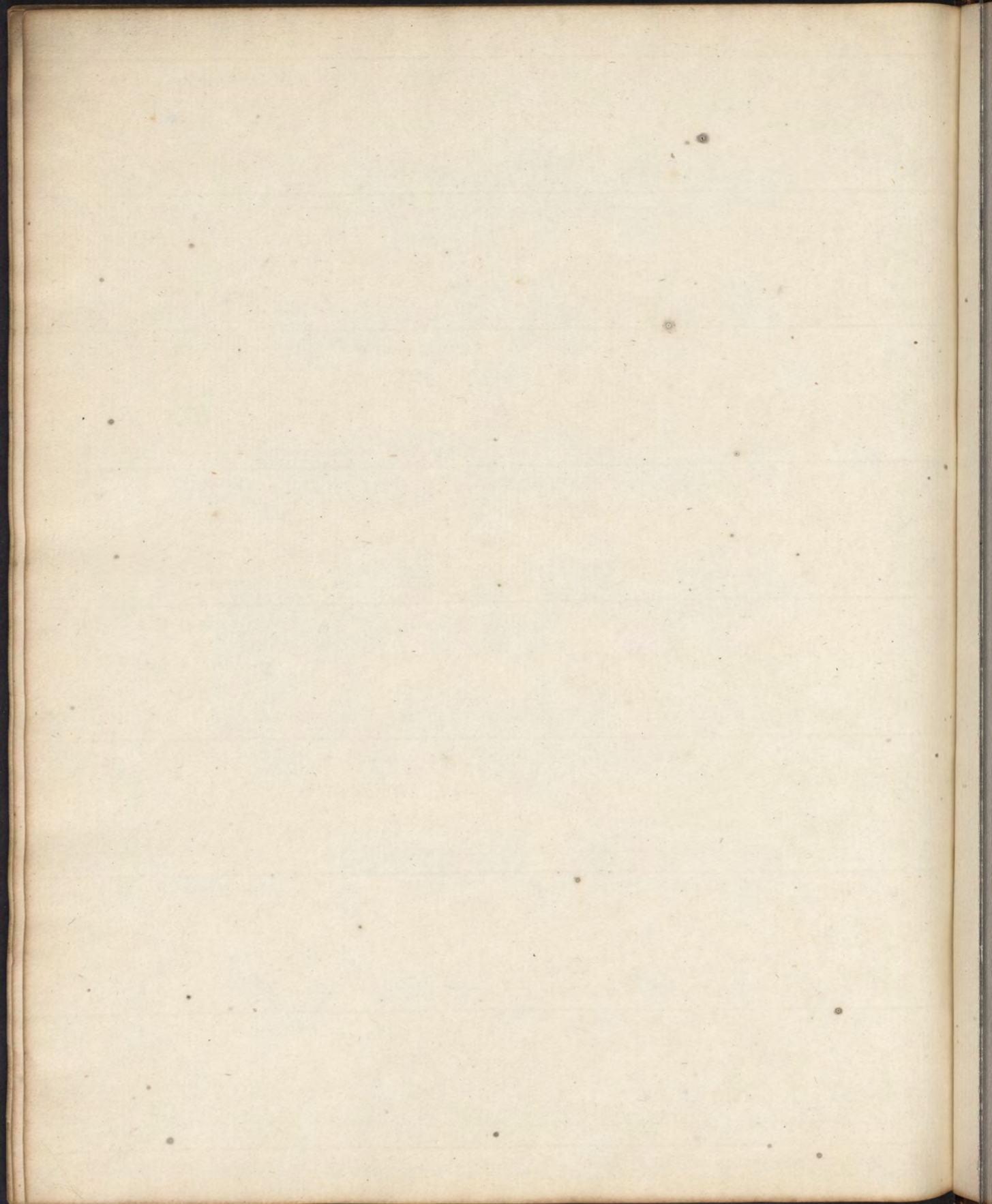


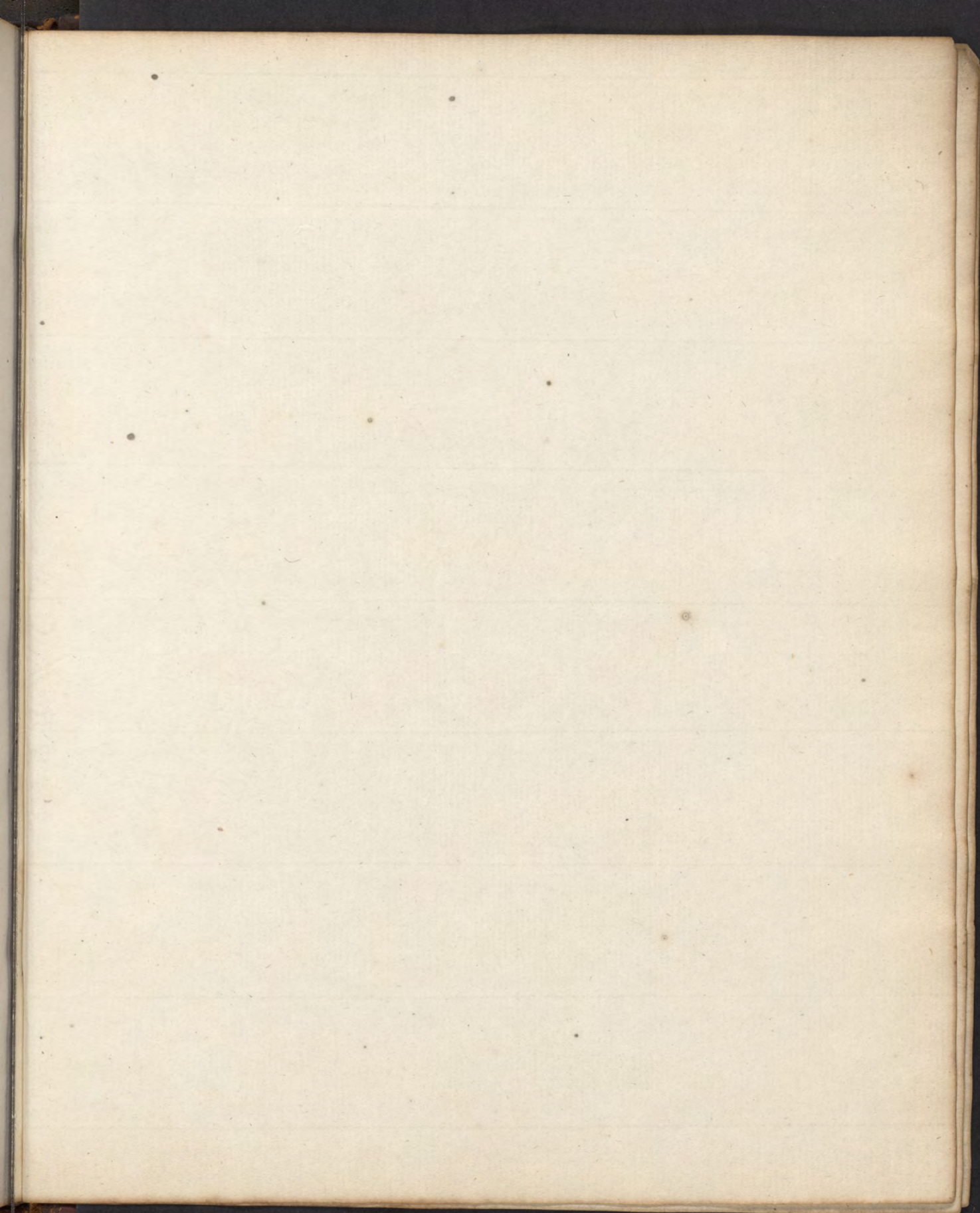


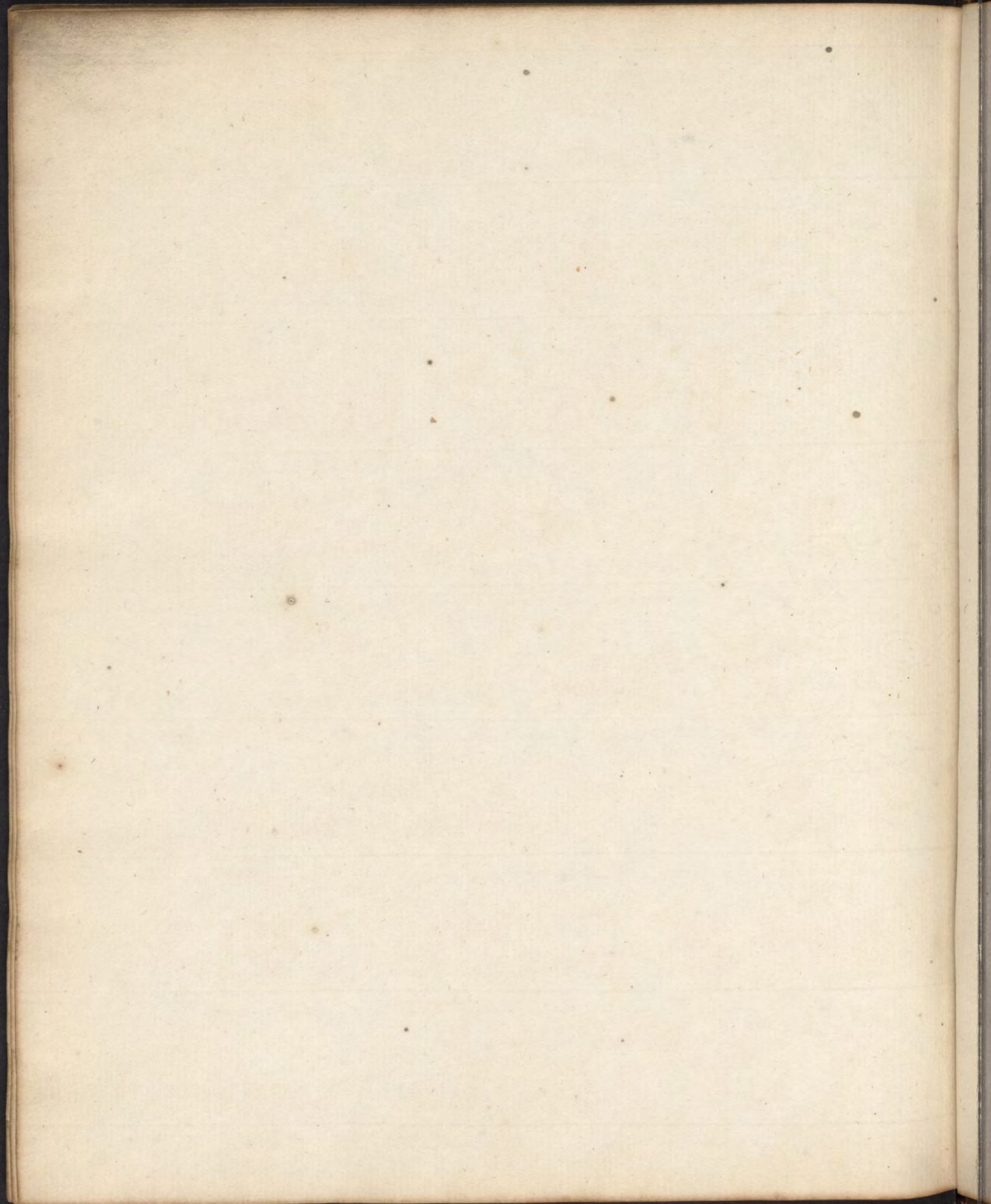


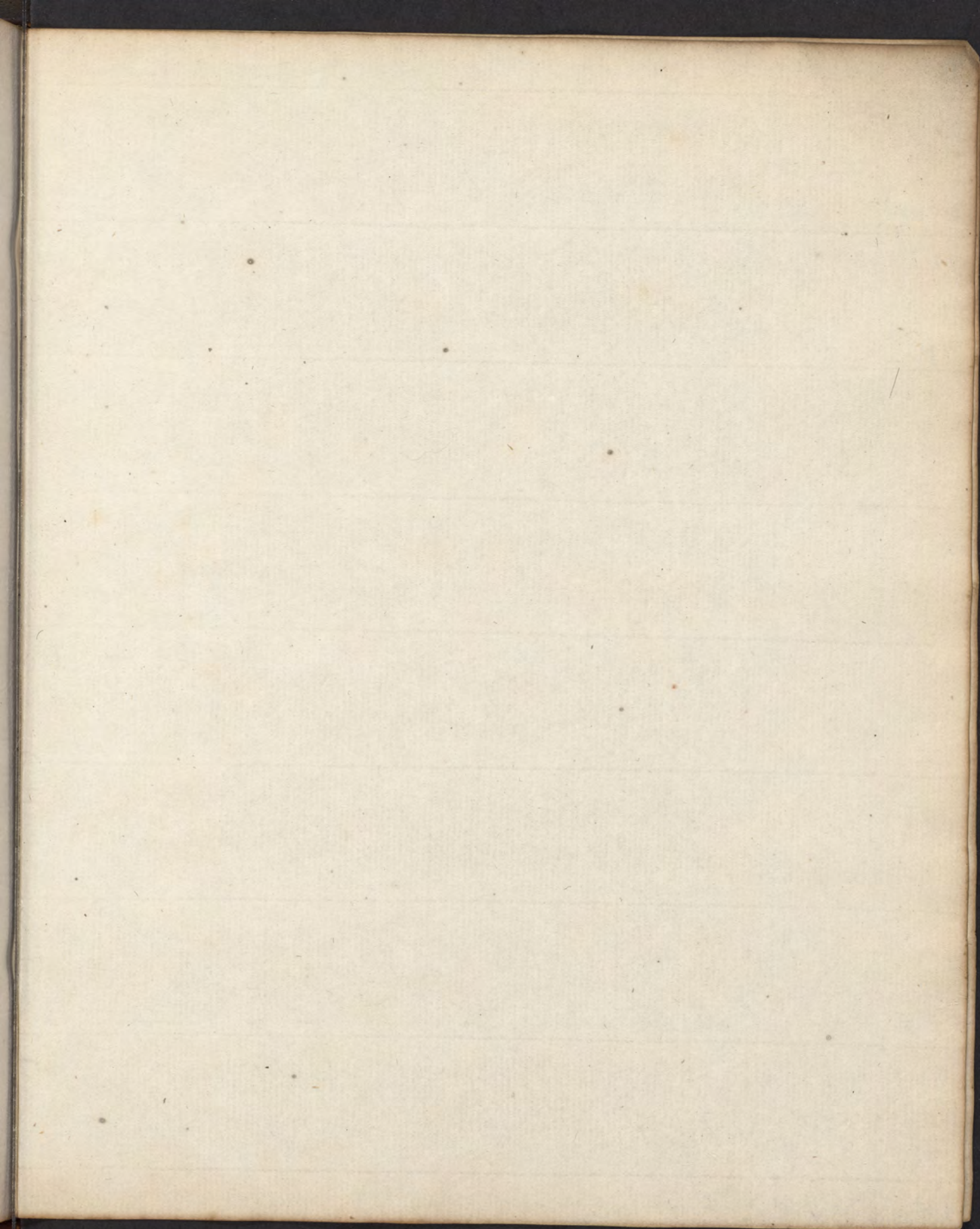


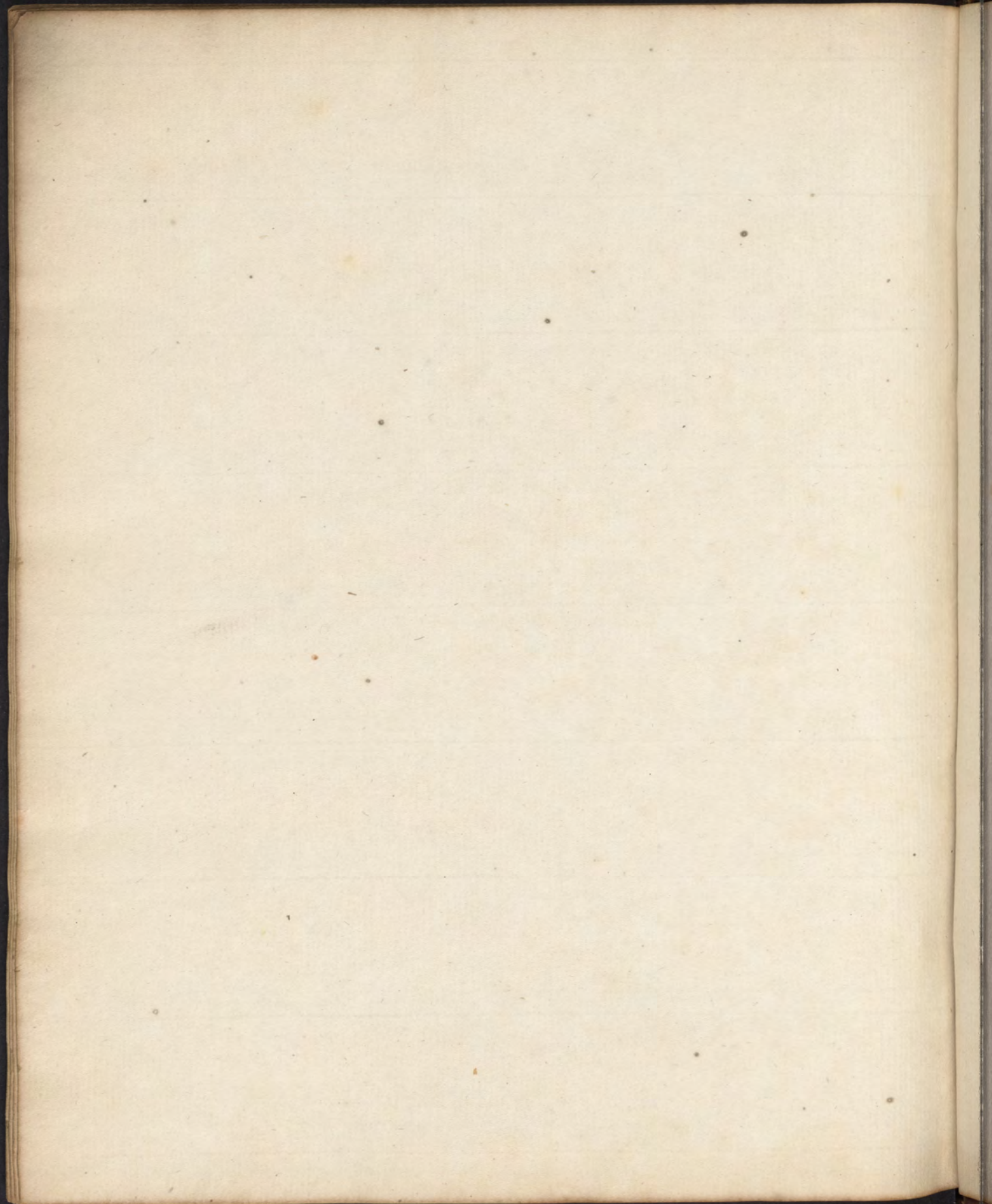


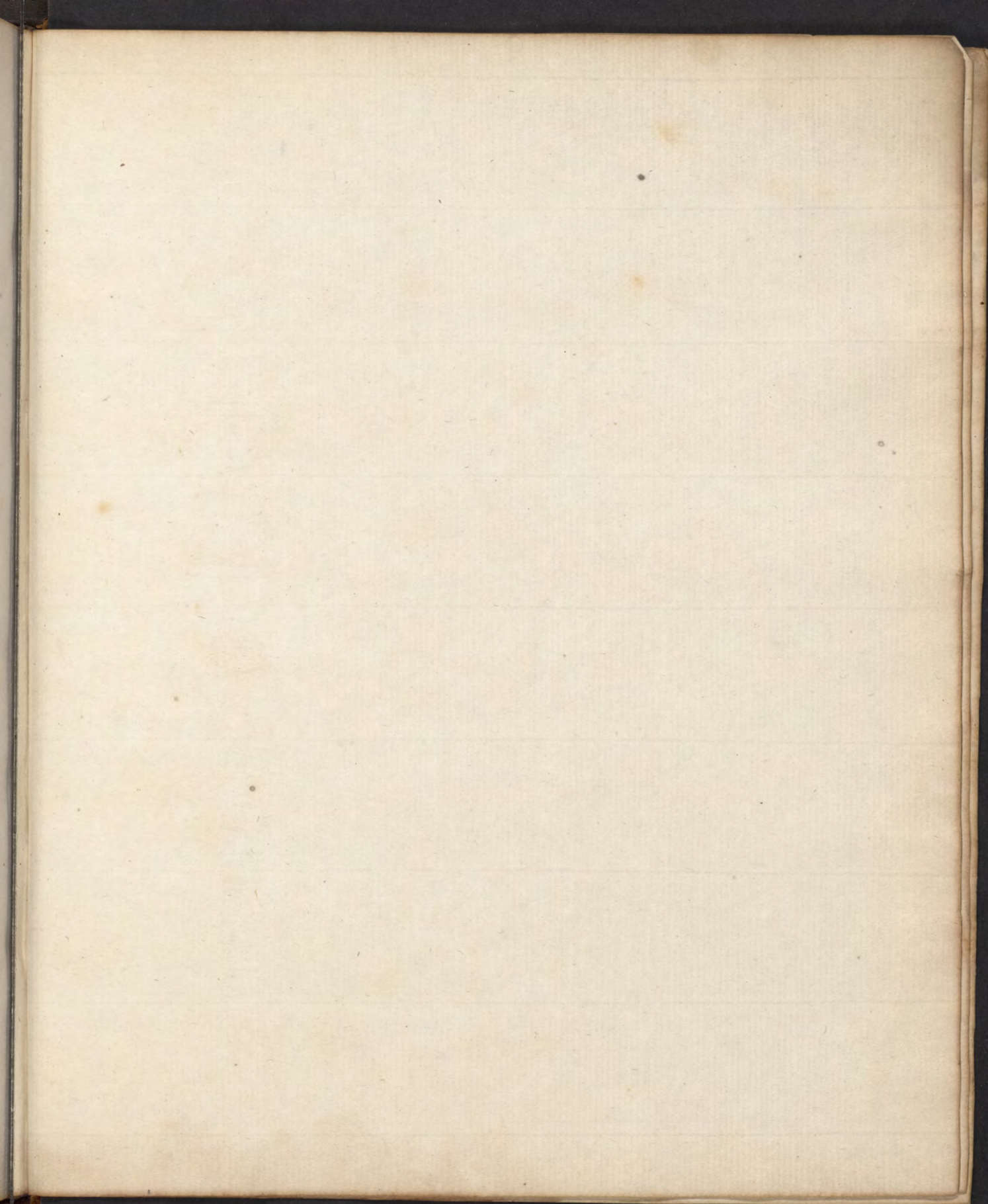


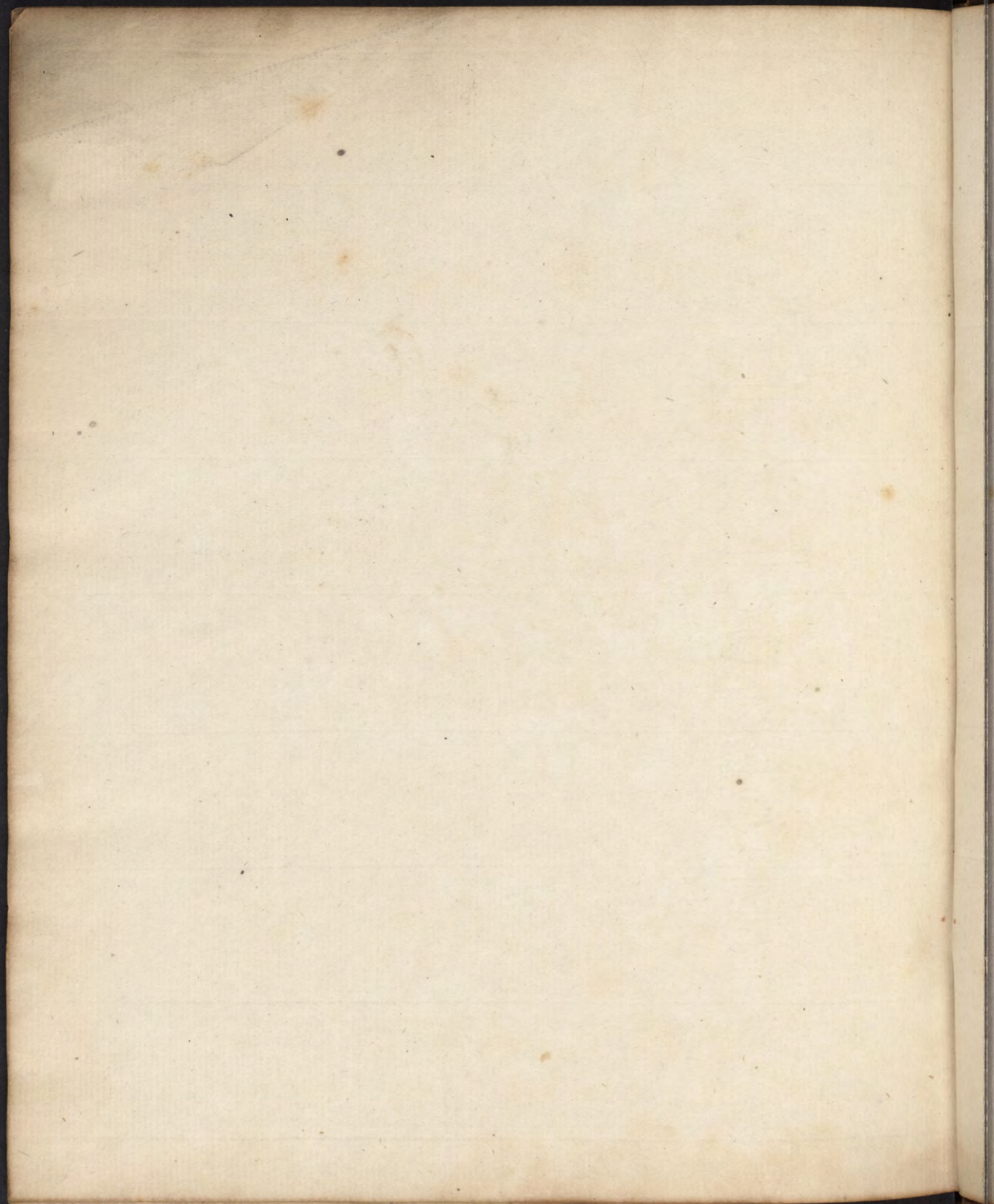


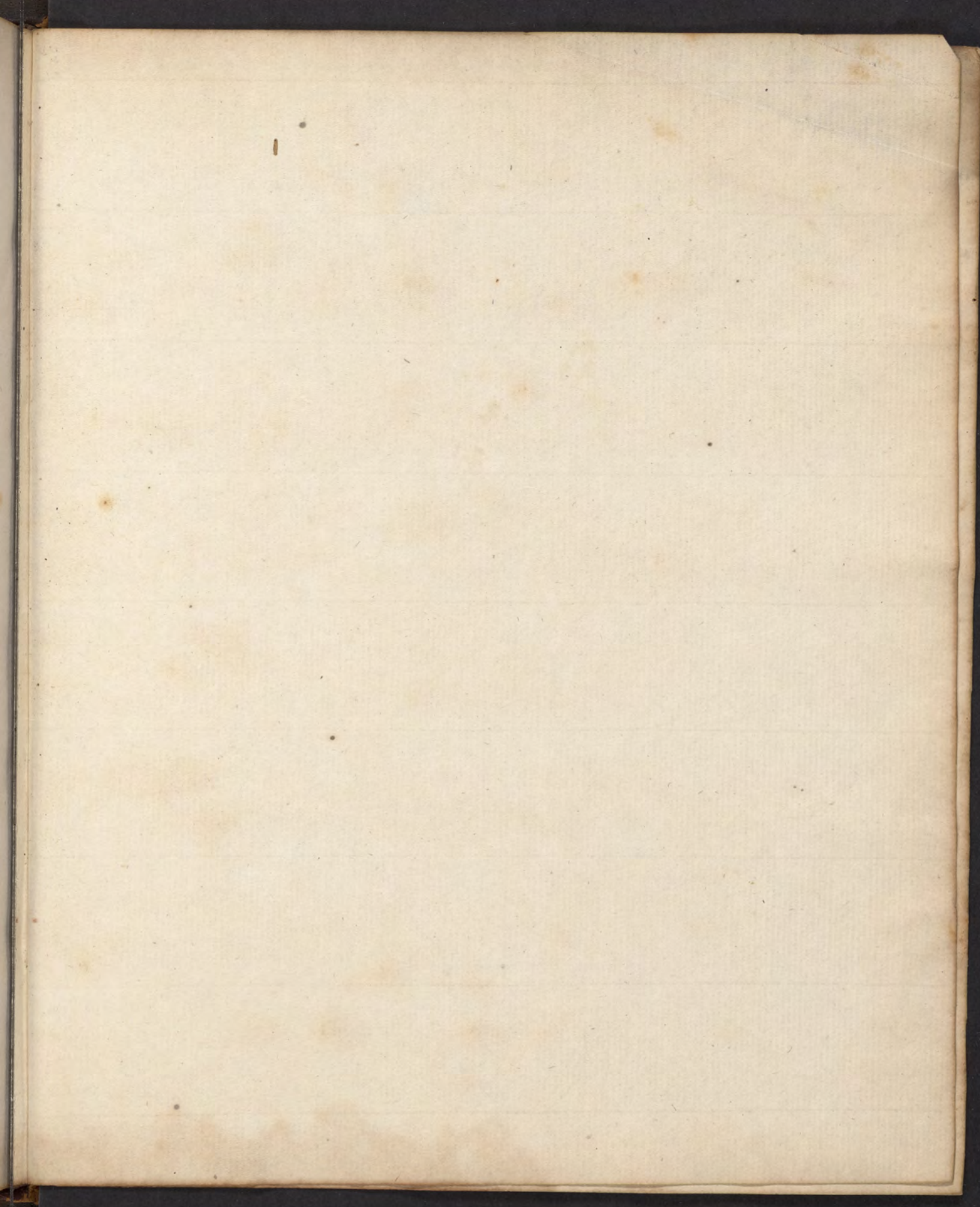


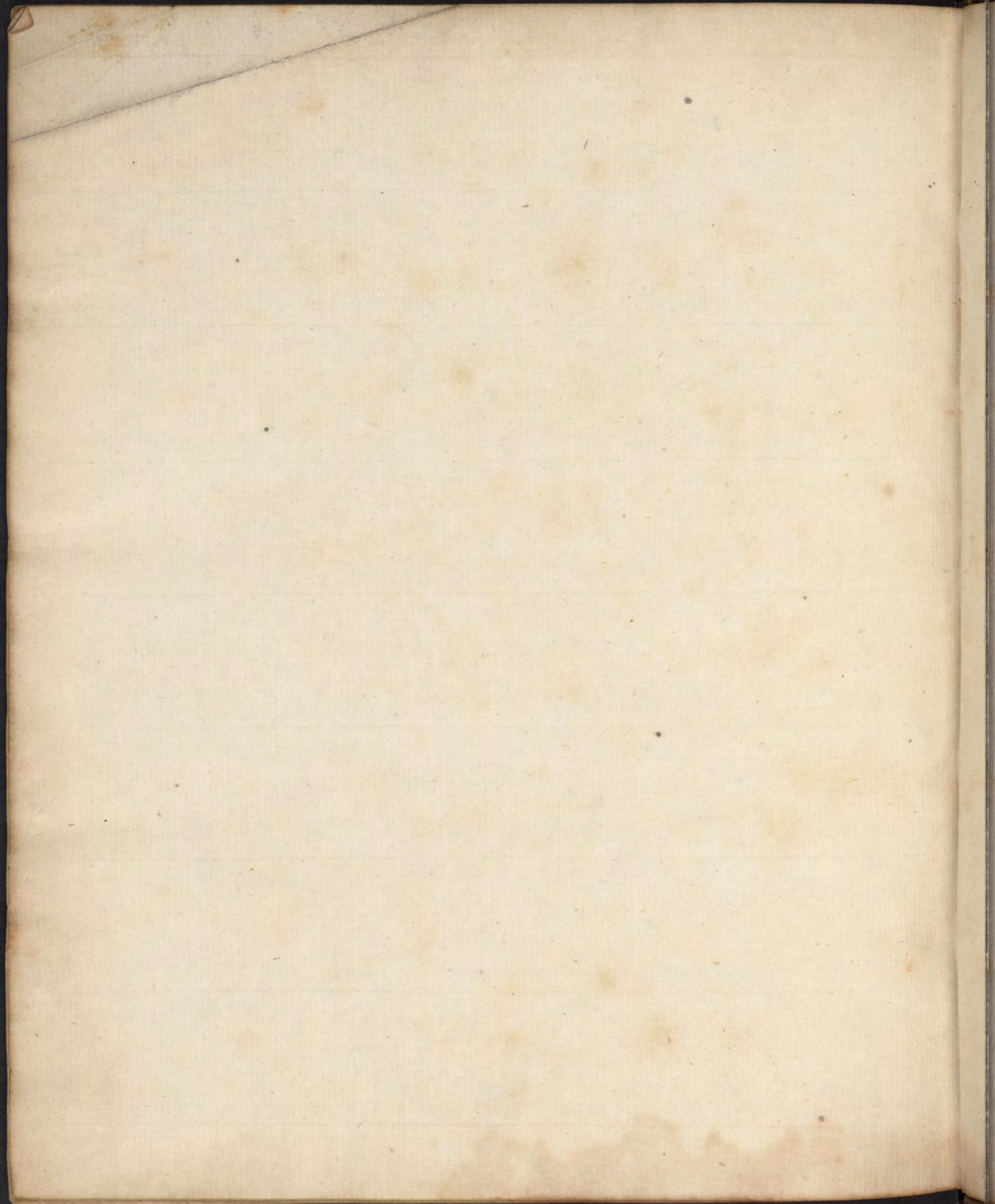


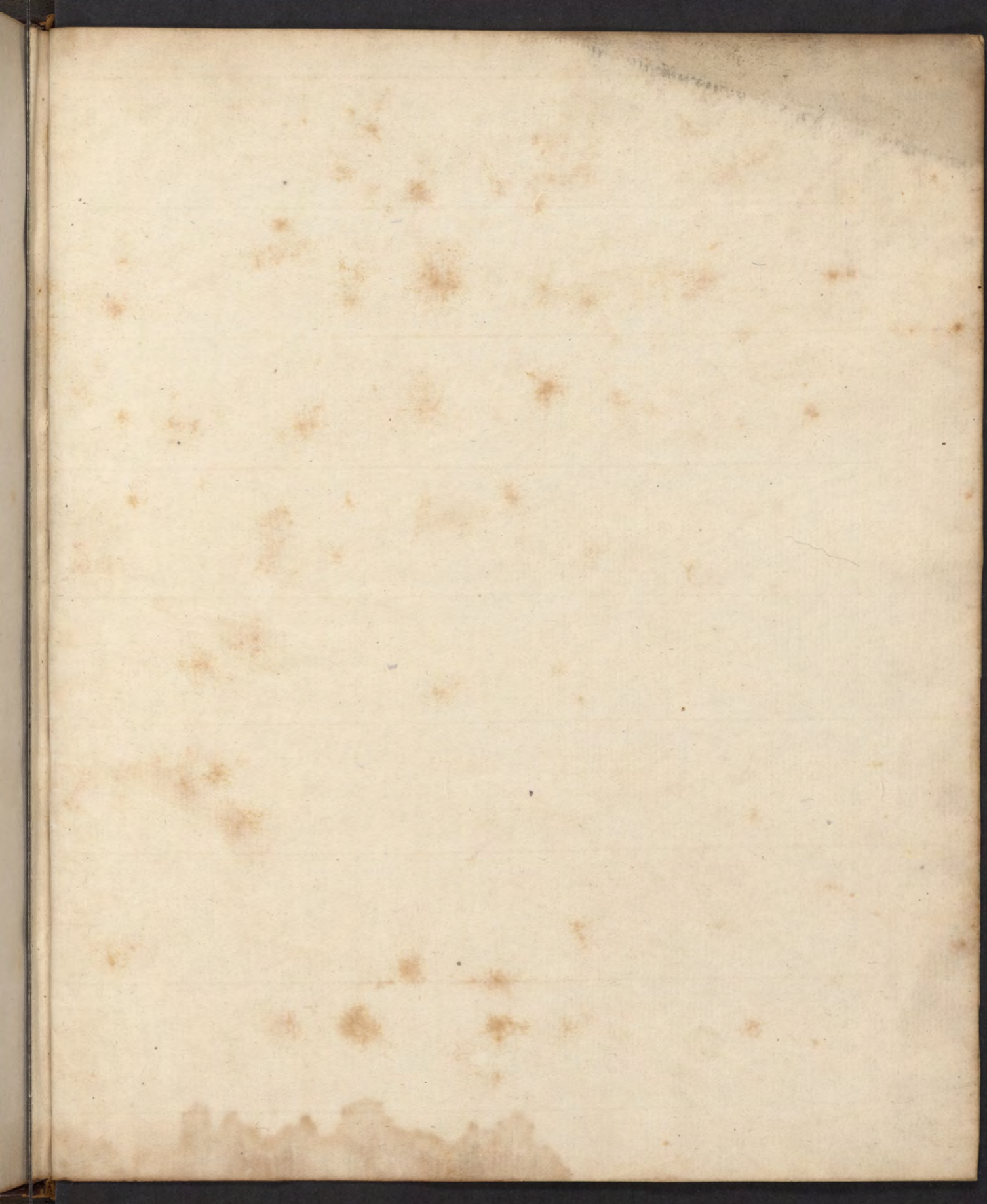














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Class 10a No 72

Presented by
Mr. Hugh Leroy Hodge

